Technical
COMMUNICATION

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The Society for Technical Communication is the largest association of technical communicators in the world. STC is currently classifying the Body of Knowledge for the field and communicating the value of technical communication. Its volunteer leadership continues to work with government bodies and standards organizations to increase awareness and accurate perception of technical communication. Membership is open to all with an interest in technical communication. Visit the STC Web site (www.stc.org) for details on membership categories, fees, and benefits.

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About the Journal

Technical Communication is a peer-reviewed, quarterly journal published by the Society for Technical Communication (STC). It is aimed at an audience of technical communication practitioners and academics. The journal's goal is to contribute to the body of knowledge of the field of technical communication from a multidisciplinary perspective, with special emphasis on the combination of academic rigor and practical relevance.

Technical Communication publishes articles in five categories:

- **Applied research** – reports of practically relevant (empirical or analytical) research
- **Applied theory** – original contributions to technical communication theory
- **Case history** – reports on solutions to technical communication problems
- **Tutorial** – instructions on processes or procedures that respond to new developments, insights, laws, standards, requirements, or technologies
- **Bibliography** – reviews of relevant research or bibliographic essays

The purpose of *Technical Communication* is to inform, not impress. Write in a clear, informal style, avoiding jargon and acronyms. Use the first person and active voice. Avoid language that might be considered sexist, and write with the journal's international audience in mind.

Our authority on spelling and usage is *The American Heritage Dictionary*, 4th edition; on punctuation, format, and citation style, the *Publication Manual of the American Psychological Association*, 6th edition.

Manuscript Preparation and Submission

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- Page 2: Structured abstract – A summary of the article (maximum 250 words), using the headings "Purpose," "Method," "Results," and "Conclusion"
- Page 3: Up to five keywords and a practitioner's takeaway (maximum 100 words) displayed as a bulleted list summarizing the practical implications of the article
- Page 4: Start of the manuscript
- References
- Tables and figures – Start each table or figure on a new page. If a manuscript is accepted for publication, provide high-resolution images.

Send the manuscript as an attachment to an e-mail message to the editor-in-chief, Sam Dragga (e-mail: tceditor@stc.org).

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The Magic and Mechanics of Research

Every research project is a curious interaction of magic and mechanics. Magic—in the creativity that inspires the research questions, in the ingenuity that devises the research methods, in the perspicacity that interprets the results, and in the sensitivity to audience and purpose that elicits ideal words and illustrations. And mechanics—in the scrupulous review and citation of previous studies, in the rigorous execution of research methods, in the meticulous compiling of results, and in the conscientious preparation of manuscripts according to publisher guidelines.

Ordinarily, we relegate magic and mechanics to separate sections of a research report: we isolate mechanics in the methods and results sections while we extract all the magic for the introduction, analysis, and conclusions. This separation, however, obscures their reciprocal relationship. I would thus like to share with you, insights from the authors of the four articles in this issue about the magic and mechanics of their research.

Carolyn Boiarsky's "Effects of Communicating with Emails and Texts in Risk Communication: Information Poor, Writer-Based, A-Synchronous" investigates the impact of electronic messaging on the communication practices of managers in crisis situations, specifically, the disintegration of the Space Shuttle Columbia in 2003,

the explosion of the Deepwater Horizon oil rig in 2010, and a landslide at a construction site in Skokie, Illinois in 2015. The article examines messages in this array of cases for evidence of three frequent failures: insufficient information, a writer-based instead of reader-based orientation, and formatting inappropriate to the information.

Carolyn explains how she developed interest in this subject of risk communication:

It was the article by Herndl, Fennell, and Miller (1991) about the Challenger that first piqued my interest in risk communication. I went delving into the Appendices of the Report of the President's Commission on the accident and discovered that as far back as 1978, eight years before the explosion, Morton Thiokol was aware of the problem. According to the article, the engineers at Three Mile Island had also been communicating about a procedural problem prior to that accident.

Then, in 1992, the Chicago Flood occurred and the news media were mentioning a document that had been written several months prior to the flood, warning about the problem. I managed to get a copy of that memo. At this point I decided to try to

discover the reason readers didn't heed these warnings and began to study the rhetorical aspects of the documents to see if there were commonalities among them. I discovered there were. I've discussed these factors in my new book, *Risk Communication and MisCommunication: Case Studies in Science, Technology, Engineering, Government, and Community Organizations*.

I've continued to examine the written communication between engineers and engineers and managers as new disasters have occurred. Prior to the 2010 BP oil rig explosion and the February 2017 break in the Oroville Dam in California, emails had been sent warning of potential problems. My students have become very aware of my interest. As soon as they hear about an environmental problem, they begin a search to see if they can find the documents written before the event that warned there was a problem.

Thus the magic in the provocative reading that leads Carolyn to more and more reading and ultimately the inspiration of a

theory that explains the available evidence. Carolyn also notes, however, the important mechanics of research that make available the materials that inspire:

> Obtaining the original documents for these cases was not very difficult, though sometimes it took a long time. The investigations and resulting final reports that include the primary documents that are written in relation to these major disasters are done by government agencies and are, therefore, in the public domain. Anyone can go online and google them. It is also possible to file a FOIA (Freedom of Information Act) request to the federal or state agency involved. Sometimes, once these documents are made public because of a request by the news media, the government publishes them on the internet. In addition, I have found that members of the news media are very helpful. Although many newspapers are legally unable to provide the documents that they have received via FOIA, the reporters are very helpful in providing information on how to submit a FOIA request.

Emily January Petersen's "Articulating Value Amid Persistent Misconceptions about Technical and Professional Communication in the Workplace" reports on interviews with 39 women working in the field of technical communication. The practitioners varied in age, class, industry, organization, ethnicity, socioeconomic background, sexual orientation, and marital/family status but shared the experience of devaluation on the job (e.g., categorized with administrative assistants, ignored in meetings, dismissed as inessential). Tactics and strategies for addressing and correcting misconceptions as well as resisting and abolishing stereotypes prove important resources with which technical communicators must be equipped.

Emily's inspiration for this research project derives from a series of distressing interactions on the job. As she explains,

> My first experiences in the workplace as a technical writer/editor were upsetting because of gender bias. I found that my male managers and colleagues were more interested in how my biology would make them uncomfortable or change the schedule and makeup of the department, rather than paying attention to my contributions to the team and how the company and its structures could be adjusted if and when motherhood happened for me. In addition, I faced several incidents of sexual harassment, and those experiences, coupled with the overall bias I faced as a woman, led me to want to explore how women in technical communication were faring.

Equipped with this insight, she engaged in the mechanics of research and writing and revision, building a dissertation and, with the aid of anonymous reviewers, adapting a portion of it for this journal article. And that intensive process itself generated new insights with implications for teaching as well as ongoing research:

> I heard stories of misconceptions and devaluation over and over again in the many interviews I conducted. Yet I kept facing skepticism from colleagues in the field who wanted to claim that we have already covered the issue of value and that we have solved it. I found through peer reviews, conferences, and networking with other scholars that so many believe this issue has been resolved. I think we have certainly considered it and written about it, but if practitioners are continuing to face difficulties and still have stories to tell about how they are misunderstood and left out of conversations with SMEs, then we still need to pay attention to it.

> Given what I learned about misconceptions, I have started addressing it as a practical concern for students entering the workforce and I've started thinking about ways to address devaluation at the college level. I see interdepartmental events and cross-disciplinary coursework and projects as ways of getting students from SME fields and technical communication to talk to each

other and work with each other. There is a continuing need for those of us who teach future practitioners to be creative about the ways we teach students to learn by doing and to interact with students from other disciplines.

Rhonda Stanton's "Do Technical/Professional Writing (TPW) Programs Offer What Students Need for Their Start in the Workplace? A Comparison of Requirements in Program Curricula and Job Ads in Industry" discusses the findings of a survey of hiring managers and recruiters in the field of technical communication regarding the skills and experiences expected of entry-level practitioners. The findings of this survey were reinforced by evidence from job ads for technical writers on Indeed.com, CareerBuilder.com, and DICE.com. The article proceeds to examine the compiled list of job requirements in light of the course offerings of academic programs to determine whether education and training are available to students for each of the expected skills.

Rhonda's inspiration for this research project derived from the intersection of job experience in industry, readings in the field, and job experience as a program administrator. She explains:

Because I worked as a corporate recruiter some during my time in industry, I was interested in job descriptions and requirements. One of the best known job boards did not provide quality candidates for me, so I didn't use it. The research I read about job ads/job postings in TC, however, looked at only that job board.

With recruiting in my background, my interest in the relation between job requirements and TC programs became even more important as I prepared to take over the technical writing program at Missouri State. A daily (constant) concern I have now, as program director, is to make sure that the requirements we have for our students are preparing them well to transition into the workplace. For majors in TC, one of the goals of graduation is to land the first job. Instructors can help students prepare for their job search by understanding how the job ads appear.

In addition, as a former recruiter, I know how very expensive it is to replace an employee who leaves, and in the computer industry where I was, a "new" employee may not contribute to the company's bottom line until he/she has been employed for an entire year. If that employee stayed just one more year, that wasn't very long in comparison to the investment the company made. When employees believe it's time to move on to a different company, though, it is important for them to understand the job search

processes and how to navigate through those successfully.

Rhonda also acknowledges the mechanics of research. "Getting participants for the survey was the biggest challenge," she notes. "I persisted, however, because publishing is one of *my* job requirements."

Kristen R. Moore's "The Technical Communicator as Participant, Facilitator, and Designer in Public Engagement Projects" reports on a field research study of professional public engagement specialists and their efforts to cultivate dialogue in a community about a prospective railroad corridor project. The article finds that technical communicators involved in public engagement initiatives must be participants, facilitators, and designers of the dialogic process.

Kristen comes to this research project through readings and community activity related to social justice, finding inspiration at the intersection of the practical and the theoretical, of the material and the ideal:

I've long been interested in how we make decision-making projects more equitable. I think it's our responsibility as technical communicators to see the fissures and slippage that might allow for more just decisions—and these often happen in seemingly mundane places, events, and projects, like building a railroad or facilitating to a public meeting.

When (in 2008) I learned about the work that this organization was doing (tackling communication and justice problems from within transportation planning projects), I knew I had to learn from their ideas, to research their strategies, and to bring them back to our field, which hasn't always understood public engagement in the ways they enact it. By that I mean, although public engagement seems to clearly exist for the edification of communities, I haven't seen it understood as a social justice project that can also be profitable. Their approach to public engagement isn't mere philanthropy—it's a business model that builds from the assumption that we can make our communities better through public policy and government mandates. This makes me hopeful. It also attuned me to the need for alternative theoretical perspectives and sites for developing technical communication strategies.

I do think that locating technical communication in new ways broadens our expectations for the field and the potential for change through technical communication. Perhaps now, more than ever, we need to see our potential for enacting meaningful, if small, change.

Kristen also acknowledges the simple mechanics of managing a field research project: for example, transit to and from the research site and public meetings, taking notes during meetings, or keeping records of informal interviews and conversations with clients and citizens.

While the conventions of the research report typically isolate magic from mechanics, I think it is instructive for us as a field to explore the points of their intersection and interaction by detailing the researcher's experience with brief and candid narratives about how magic influences mechanics and vice versa: for example, "This idea displayed itself in my mind as a map and that image encouraged my learning how to build maps with this application and ultimately to develop the map that I included here as Figure 1." We could also apply the magic and mechanics of research reflexively to identify the vital characteristics of this reciprocal relationship. For example, through empirical studies we could address a series of important questions about the research process: Does the reciprocal relationship of magic and mechanics differ according to the individual? according to the research project? according to quantitative versus qualitative studies? What are the factors that make this reciprocal relationship more or less productive of noteworthy research? more or less productive of a gratifying research experience? of a cost-effective research experience? How do writing and research technologies invigorate or dilute this reciprocal relationship?

If we would explicate this reciprocal relationship, including it in research reports and integrating it in education and training, we could reinforce the humanity and fragility of the research process. We could also cultivate technical communicators who are more and more aware and agile in building knowledge—more stirring in their exercise of mechanics and more industrious in their pursuit of magic.

On the Cover

The center icons are in focus with muted colors to represent the conventional methods for technical communication, marketing communication, and content strategy. As more innovative forms of communication emerge over time, their underlying defining categories become blurrier. A closer look reveals that those emerging applications appear, blend, and even disappear with disruptive speed and impact.

I hope that my illustration evokes the challenges we face in dealing with these blurring lines of distinction among the varied and overlapping forms of communication.

About the Artist

Ed Rempfer is a Multimedia Content Developer at SofterWare, Inc., where he creates websites, videos, animations and graphics in the User Experience department. From a bustling advertising agency to a growing software company, Ed has worked in the creative media industry since 2003 and loves every minute of it. In his spare time he likes to work out, play the piano, and play video games. Contact Ed at erempfer@softerware.com.

Effects of Communicating with Emails and Texts in Risk Communication: Information Poor, Writer-Based, A-Synchronous

By Carolyn Boiarsky, Purdue University Northwest

Abstract

Purpose: This article examines how electronic messaging may have affected communication between engineers and managers during three crisis situations---the Columbia shuttle breakup, the BP/Horizon oil rig explosion, and the Skokie, IL, landslide.

Method: A rhetorical analysis was conducted of email messages written during the three crisis situations. The analysis was based on previous studies which indicate that writers of electronic messages provide insufficient information, compose writer-rather than reader-based texts, and use inappropriate formats for communicating complex or controversial issues.

Results: A failure to include sufficient information characterized a number of the email messages sent prior to the BP/Horizon explosion. Writer- rather than reader-based messages were written prior to the BP/Horizon explosion as well as during the Columbia breakup. Some of these messages included personal and irrelevant information as well as social media conventions conflated with business formats. Various BP/Horizon oil rig messages were also often communicated in an inappropriate format for discussing complex and controversial information. On the other hand, email messages sent following the Skokie landslide appear to be reader-based, contain no personal or irrelevant information, are free of social media conventions, and provide responses in a timely manner.

Conclusion: Had writers in the BP explosion and the Columbia breakup written reader-based texts as well as recognized the asynchronous nature of electronic communication, their messages may have been more effective.

Keywords: Risk Communication; BP/Horizon Gulf Oil Rig Explosion; Columbia shuttle accident; Skokie, IL, Landslide; reader-based writing.

Practitioners' Takeaway

- Ascertain that responses provide all necessary information for all requests within a message
- Ensure messages are reader-oriented
- Recognize that readers are in a low-context culture
- Use an organizational format that matches readers' reading patterns when using electronic media
- Avoid conflating social media conventions with business formats

- Consider which of several formats—electronic media, traditional snail mail or interoffice mail, telephone, or person-to-person discussion--is the best format for communicating information, especially if the message is concerned with a complex and/or controversial topic
- Recognize that electronic media are asynchronous and provide signals to the reader on when a response is expected.

Carolyn Boiarsky

Introduction

The amount of electronic messaging being read and sent in a single day is mind-boggling. Not only have snail mail and interoffice letters and memoranda between engineers and managers migrated to emails and texts, but the telephone has also been fused into these electronic forms, resulting in employees on call 24/7 to write, read and respond to a never-ending stream of messages. According to the Radicati Group (2016), emails continue to be the leading form of business communication. It is expected that over 132 billion emails per day will be sent by 2018. The number of business email accounts is expected to increase at a rate of 3.5% annually. By 2020 it is expected that there will be over 1.1 billion business and consumer email accounts worldwide (Radicati Group, 2016). The typical corporate email user receives about 121 messages per day (Smith, C., 2017). The ADI survey found that approximately four hours per day is spent on work-related emails (Abramovich, 2016).

The device on which electronic messages are read has also migrated from the stationary computer to the tablet, to the smart phone, and most recently to the watch. According to Radicati Group (2016), over 1.7 billion users worldwide will be using some form of mobile device for reading email messages in 2017. The ADI survey (Abramovich, 2016) found that the use of smart phones had grown 21% in 2016. For those ages 18-39, the smart phone has become the primary device for reading emails (MarketingCharts, 2014); Mujamdar (2013) estimates that this demographic checks their smart phones for email approximately 150 times a day. Fifty-five percent of email is now opened on a mobile device. (Smith, L., 2016). With the demand for the Apple watch outpacing production (Reuters, 2015), it is estimated that this device will eventually be used as much as the smart phone for reading messages. For the Z (or I) generation (born between 1995 and 2009), texting has become the format of choice with email considered almost as retro as snail mail (Mims, 2016).

The use of the iPhone to communicate information is exemplified by the messages contained in the email chain in Figure 1. The three messages are related to monitoring construction for a new Metropolitan Water Reclamation District (MWRD) sewage plant for Chicago's Skokie district by the Walsh Group in 2015. The chain involves three people from two different organizations: Getahun Denikew and Gregory Poulos from MWRD and Matthew Pozzi from the Walsh Group, a subcontractor of the MWRD. Construction previously caused a landslide at a nearby railway site, shutting down the CTA's (Chicago Transit Authority) Yellow Commuter Line. As the construction on the sewage plant proceeds, the land around the Yellow Line has to be shored up so that the Line can resume running. In addition, the engineers need to keep close watch to ensure that the vibrations from the construction do not move the land near the track over ¼ inch. It was determined that the landslide had been caused by the movement exceeding the previously determined ¼-inch limit.

The email from Pozzi, relates to a previous email from Tom Krug of the CTA. Denekew's message contains two forwarded messages, both of which have been sent from iPhones.

From: Pozzi, Matthew <mpozzi@walshgroup.com>
Sent: Thursday, July 23, 2015 1:09 PM
To: Getahun, Denekew; Little, Joshua
Cc: Poulos, Gregory; Busza, Beata
Subject: RE: 20150722 - MWRD Skokie - Tilt-meters
Attachments: RE: 20150720 - MWRD Skokie - Tilt-meter Readings

The attached was our response. We are not monitoring the same soldier pile for movement as part of our new monitoring plan as updated in today's meeting.
Thanks, Matt Pozzi
The Walsh Group
Cell (312) 656-7406
www.walshgroup.com

From: Getahun, Denekew [mailto:GetahunD@mwrd.org)
Sent: Thursday, July 23, 2015 9:30AM
To: Little, Joshua; Pozzi, Matthew
Cc: Poulos, Gregory; Busza, Beata
Subject: Fwd: 20150722 - MWRD Skokie - Tilt-meters

Josh/Matt,
We would appreciate to know if there was any response by Walsh to the below message from CTA's Tom Krug.
Thank You

Communicating Risk with Emails and Texts

D. Getahun, RE

Sent from my iPhone Begin forwarded message:

From: "Poulos, Gregory" <PoulosG@mwrd.org>
Date: July 23, 2015 at 7:18:10 AM CDT
To: "Getahun, Denekew" <GetahunD@mwrd.org>
Subject: Re: 20150722 - MWRD Skokie - Tilt-meters

Has Walsh addressed this with you? Sent from my iPhone
On Jul 22, 2015, at 3:57 PM, Getahun, Denekew <GetahunD@mwrd.org> wrote:

FYI

Sent from my iPhone
Begin forwarded message:
From:"Krug,Tom" <Tom.Krug@gcinc.com>
Date:July 22, 2015 at 3:54:46 PM COT
To: "Matt Pozzi(mpozzi@walshgroup.com)" <mpozzi@walshgroup.com>,"Josh Little (jolittle@walshgroup. com)"
<jolittle@walshgroup.com>
Cc: "Greg Poulos (gregorv.poulos@mwrd.org)" <gregory.poulos@mwrd.org>,"denekew.getahun@mwrd.org"
<denekew.getahun@mwrd.org>,"dennis.bilik@mwrd.org"
<dennis.bilik@mwrd.org>
Subject:FW: 20150722 - MWRD Skokie -Tilt-meters
Updated tilt meter results.
Thomas P. Krug,P.E.
Direct 847.777.7562 ICell847.224.0050 I Fax 847.272.5393
Tom.Krug@gcinc.com

From: Bertin,Guy [mailto: gbertini@transitchicago. com)
Sent: Wednesday,July 22, 2015 3:53PM
To:Krug,Tom
Cc: Boeldt,Derek;McCarthy,Michael (CTP);Harper,James;Lauer,Steve
(SLauer@wje. com)
Subject:2 0150722- MWRD Skokie- Tilt-meters

Please see attached graphs showing readings from the tilt-meters on
FCS1ERS and South Bridge Abutment structures.

There is an increasing trend being shown for the tilt for the bottom of
'Wall C'.

Guy Bertini

Figure 1. Use of iPhone to send messages. (Highlights added by this author. Threads are in reverse chronological order—last to first—as they would appear in an email chain.)

The use of a phone or watch, unlike a computer or telephone, allows engineers and managers to communicate easily and quickly regardless of their location or the time of day. There is no need for anyone to return to an office to check email.

The message in Figure 2, which is related to the need for completing the MWRD sewage plant in a "timely manner" following the landslide at the Yellow Line track, is sent by Josh Little of the Walsh Group to Jason Schneider with Collins Engineering. Little has sent the email in response to a message that he received from James Harper of CTA. The chain, involving three people at three different companies in three different locations, is communicated within a 24-minute period.

From: Little, Joshua <jolittle@walshgroup.com>
Sent: Thursday, August 6, 2015 5:20 PM
To: Jim Harper; Poulos, Gregory
Subject:: Fwd: MWRD Project- Schedule versus Risk

Fyi below

Josh Little
Sent from my iPhone

Begin forwarded message:

From: Jason Schneider <JSchneider@collinse ngr. com>

Carolyn Boiarsky

Date: August 6,2015 at 5:04:24 PM COT
To: "Little, Joshua" <jolittle@walshgroup.com>,
"Pozzi,Matthew" <mpozzi@walshgroup.com>,
"Petersen,Duane" <dpetersen@walshgroup.com>,
"Everson, Nick" <neverson@walshgroup.corn> Cc:
Michael Garlich <MGARLICH@collinsengr.com>, Lin
Van <lyan@collinsengr.com>
Subject: RE: MWRD Project -Schedule versus Risk

Josh,
We are performing the final review currently/
tonight and will make the final revisions in the
morning. We will send it ASAP.
Jason Schneider, S.E.,P.E.
COlliNS ENGINEERS, INC.
Direct 312.236.5953
jschneider@collinsengr.com

From:Little,Joshua {mailto:jolittle@w alshgroup.
com]
Sent: Thursday,August 06, 2015 4:47PM
To: Jason Schneider <JSchneider@collinsengr.com>;
Pozzi, Matthew <mpozzi@walshgroup.com_>;
.   ▌
Petersen, Duane <dpetersen@walshgroup .com>;
Everson, Nick <neverson@walshgroup.com>
Subject: Fwd:MWRD Project- Schedule versus Risk
Jason
See below- we really need rev2- we getting this
today?

Josh Little
Sent from my iPhone

Begin forwarded message:

    From: "Harper,James" <JHarper@transitchicago.
    com>
    Date: Augu_st 6,2015 at 4:40:44 PM COT
    To: "Little, Joshua" <jolittle@walshgroup.
    com>,"gregorv.poulos@mwrd. org"
    <gregorv.poulos@mwrd .org>
    Cc:"Seimetz,Karen" <kseimetz@transitchi cago.
    com>, "Kowalski, David"
    <DKOWALSKI@transitchicago.com>,"Boeldt,
    Derek" <dboeldt@tr ansitchicago.com>, "McCar-
    thy, Michael (CTP}" <tnmccarthy .ctp@tran sitchi
    cago. com>, "'McGormley, Jon'"

<JMcGormley@wje.com>, "Tom Krug (tom.
krug@gcinc.com)" <tom.krug@gcinc.com>,"
Bushell, Chris" <CBusheII@transitchicago.com>
Subject: FW: MWRD Project - Schedule versus Risk

Josh/Greg:
As a follow-up to our progress meeting today, the
CTA would like to reinforce our priorities for the
repairs and restoration of the Yellow Line tracks.
First and foremost, we
want to protect what remains of our infrastructure,
including the bridge abutment
structure and the remaining portion of the em-
bankment. It is in no part-vs interest to risk any
further damage to this infrastructure, even if addi-
tional risk mitigation efforts imply further delays to
the overall restoration schedule. We believe the
proposed installation of the inclinometer will help
us better protect the bridge abutment by giving
us early warning of any soil movement as Walsh
excavates down to the final elevation. Also we,
and I am sure you, want to be completely certain
that the current FCS-3 structure design associated
with walls A and C will perform to an acceptable
level (especially at the bottom elevation of the
structure). Collins submission of Revision 2 to
their calculations may help resolve our concerns,
but we will need a few days to work through these
calculations once they are received.
In closing, CTA has demonstrated that we are
ready to apply all necessary resources to support
the restoration efforts, including expedited re-
views of all submissions from Walsh's engineers.
We will continue to do all that we can to assist in
achieving the earliest possible service restoration
date. However, service restoration goals must be
balanced with our goal ta protect our remaining
infrastructure, and to ultimately rebuild
a high performing, low maintenance embankment.
Thanks
Jim Harper
Chief Engineer, Infrastructure
Chicago Transit Authority
Cell Phone: 312-907-4969

**Figure 2. Threads in a chain of emails over a 24-minute peri-
od. (Highlights added by this author.)**

Communicating Risk with Emails and Texts

Communication Failures: Traditional Media

Despite writers' ability to communicate quickly via electronic messaging to provide information that could potentially prevent a crisis situation or that could ameliorate one, their messages have often been disregarded. In fact, the inability of writers to communicate effectively has been cited as a contributing factor in crisis situations for the past half century.

For examle, failures in communication between engineers and between engineers and managers have been cited as a major cause of such disasters as the Three Mile Island (TMI) nuclear incident in 1979 and the Challenger and Columbia shuttle accidents in 1986 and 2003 respectively. Herndl, Fennell and Miller (1991) in their analysis of the TMI and Challenger accidents conclude that "both these technological disasters involved failures of communication" (p. 279). They cite two kinds of communication failure: (1) miscommunication, which is concerned with the "how" of communicating, the "lack of a common language… within an organization," and (2) misunderstanding, the "what" of communicating, the difference between the "formal and social dimensions of language" (p. 303).

TMI was partially caused by a failure of a manager at one nuclear plant to understand the reason for a change in procedures as recommended in a memo from an engineer at another plant. According to *The Report of the President's Commission on the Accident at Three Mile Island (*1979), "Lessons from previous accidents did not result in new, clear instructions being passed on [communicated] to the operators [at TMI]" (p. 10). According to Mathes (1989), the memo, suggesting that new procedures be written, was composed in such a way as to preclude action. Mathes suggests that the writer 'misinterpreted' his audience.

The Presidential Commission on the Space Shuttle Challenger Accident found that "Had these matters [Solid Rocket Booster joint seal] been clearly stated … it seems likely that the launch of the 51-L might not have occurred when it did" (p. 104). Herndl, Fennell, and Miller (1991), Dombrowski (1991), and Winsor (1988) cite a writer's inappropriate rhetorical decisions for managers' failure to heed a letter providing the results of a test on the effect of temperatures on the O-rings. According to Winsor, managers and engineers interpreted the "same facts from different perspectives" (p. 101). Winsor suggests that the memorandum should

have provided an interpretation of the results rather than simply presenting the numerical analysis: "That this memo did not communicate its intent is shown by the fact that the people who read it were uncertain about what it meant" (p.105). Herndl, Fennell, and Miller argue that the writers of the documents, warning of a potential disaster if the problem with the O-rings is not fixed, were in lesser positions than those reading the documents and were unable to indicate their expertise rhetorically to their readers, leaving their readers with the perception that the warnings could be disregarded.

The Presidential Commission on the Space Shuttle Challenger Disaster does not go as far as citing communication failure as a root cause for the Shuttle accident, but the Columbia Accident Investigation Board does: "Communication failures…figured in a decision-making process that permitted…internal flight safety problems to bypass key Shuttle managers" (p. 100). While much has been written about the PowerPoint slide (Tufte, 2006) in which the designers failed to emphasize the inadequacy of the model used to determine the extent of the damage that the dislodged tile may have caused, little has been discussed about Robert Dougherty's email (see Figure 5), which came close to approximating the results of the tile's impact on the shuttle, but was basically ignored because the writer, like the writers of the warning documents related to TMI and the Challenger shuttle, failed to make appropriate rhetorical decisions.

Communication Failures: Electronic Media

The migration to messaging via electronic media has exacerbated the problems of communication. While much has been written about the efficacy of using social media during crisis situations as a means of communicating with communities that might be affected (Potts, 2014), that issue is outside the scope of this article, which is limited to an analysis of the electronic communication transmitted among those involved in the decision-making processes related to a crisis situation (i.e., engineers and managers).

Writers' ability to make effective rhetorical decisions to persuade their colleagues and managers to heed their warnings appears to become increasingly difficult with the use of electronic messaging, resulting in less informed decision-making. This article examines the results of rhetorical analyses of key electronic messages involved in three recent crisis situations—the Columbia Shuttle

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break-up in 2003, the BP/Horizon oil rig explosion of 2010, and the Chicago/Skokie sewage plant landslide in 2015. The reports of the governmental commissions studying the causes and effects of the first two of these incidents cited many of these messages as indicative of major communication problems. A final report on the third incident has not yet been published.

The results of the analyses indicate that messages appear to meet Flower's definition of writer- rather than reader-based texts:

> In Reader-Based writing, the writer does not simply express thought but *transforms* it in certain complex but describable ways for the needs of a reader. Reader-Based prose is a deliberate attempt to communicate something to a reader…. Writer-based prose is the under-transformed mode of verbal expression…. It is ego centric…. It is a verbal expression written by a writer to himself and for himself. (Flower, 1999, pp. 19-20).

Results also indicate that the messages are often truncated and "information poor," failing to provide necessary background information, or rambling, including irrelevant personal statements and narratives. Writers may adopt an inappropriate style and fail to organize their information according to their readers' pattern and style for reading electronic media. Writers may also (mis)perceive that their message is synchronous and instantaneous. Sometimes, too, their style may more nearly resemble that of social media texts on Facebook or LinkedIn than business correspondence. This integration of a social media style into documents warning of potential problems further decreases readers' perception of the imperative nature of a document—a major problem indicated in previous incidents, as Herndl, Fennell, and Miller (1991) suggest.

Information poor messages

Analysis of emails sent prior to the BP/Horizon oil rig explosion appears to support Ekroth's findings (2014) that email and text messages are often 'information-poor' (Ekroth, 2014). As writers hurry to respond to a message, often at an inconvenient time and inappropriate location (walking along an office corridor on the way to a meeting or grabbing lunch at the cafeteria), they often reply with minimal wording and provide information for only one request in a message, regardless of the number of items it contains. In addition, their response is often at a surface level, despite the complexity or the potentially disastrous consequences of the situation.

As incoming messages continue to grow along with the number of devices that provide immediate access, employees are finding themselves on call 24/7, pressured to write, read and respond "in a timely manner." The expected time for a response in 2014 decreased from four hours to one hour by 2015 (Vanderkam, 2016). One of the major causes for this pressure is a misperception that, because the telephone as a transmitter of voice messages is instantaneous and synchronous, the transmission of emails and texts is also. Electronic messages, however, are a-synchronous. The average time for an email response is between 23 and 28 hours (Vanderkam, 2016; Dabbish, Kraut, Fussell, & Kiesler, 2005). Only 50% of emails have a response within 2 hours (Vanderkam, 2016). Ninety percent of people who are going to respond do so within two days. The longer the delay between messages, the less chance there is that there will be a reply. Older people respond less quickly than younger people, while mobile device users respond quicker than those on computers (Kooti, Aiello, Grbovic, Lerman, & Mantrach, 2015).

The pressure on both managers and engineers to respond immediately to their messages has created an electronic communication overload (Jackson 2012; Barley 2011) which for want of a better name I shall call ECSS (Electronic Communication Stress Syndrome). This pressure to respond quickly has resulted in a truncated form of communication. Messages are written with minimal wordage and without much thought (Skovholt, 2009). Responses may be limited to a single item even if information for several items is requested, causing the writer of the initial message to request additional information. When a message is concerned with a complex or controversial topic, this lack of information may lead to misinterpretation or failure to understand a response altogether.

Writers' failure to include background information and details may increase the potential for misunderstanding as well as require both the writer and the responder to expend an increased amount of time writing additional threads in a chain in order to obtain all of the information needed to make a decision or take action. (Conversation threads related to the same subject create a chain of emails or text messages with participants responding sequentially to each other).

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In the chain of messages in Figure 3, for example, the reader needs to engage in additional emails to obtain all the information initially requested. The chain relates to the preparation by engineers on the BP/Horizon oil rig to cap the Macondo well in 2010. Drilling for oil in deep water requires a sequence of two drilling procedures: (1) drilling the well itself, which requires a large rig, and (2) drilling for the oil, which requires a smaller rig. The Gulf explosion occurred when the engineers on the first rig were completing drilling the well and preparing to pull out so the smaller rig could begin drilling for oil. In the first email in the chain in Figure 3, Dobbs asks, "What swayed the decision to 7" liner?" Apparently, she has not received any background information that would have provided her with an understanding for that decision. Morel provides her with a basic explanation, "7" is so we can run a long string…" but there is apparently more that she might want to know as he adds "If you want more details, let me know." While this is a traditional rhetorical convention in business communication, it indicates that there is more information that Morel has not included that Dobbs may want to know. However, he does not include the details, forcing her to continue the chain if she needs further clarification. Furthermore, Morel does not provide a response to her question, "do y'all know if there is an SOR floating around…," so she may need to repeat the question in an additional thread.

From: Dobbs, Sarah
Sent: Tuesday, March 30,2010 10:33 AM
To: Morel, Brian P; Hafle, Mark E
Cc: PTNEDA, FRANCISCO
Subject: Pip Tags and Casing
Guys -
We would like pip tags near the casing hanger, just below the production liner top, just above the sand, and one near TD.
Also, what swayed the decision to 7" liner?   Was it availability or cementing concerns?
And, for historical knowledge, in August it looks like y'all discussed (with Hu) the option of 10-3/4" casing to 3000' below the mudline to accommodate a larger 1 5K SCSSV.   It was our understanding that the casing was unavailable, so that option was eliminated. Is that correct?
By the way, do y'all know if there is an SoR floating around for this well.

Sarah Elisabeth Dobbs
BP Gulf of Mexico Deepwater
Completions Engineer

From: Morel, Brian P
Sent: Tuesday, March 30,2010 10:54 AM
To: Dobbs. Sarah; Hafle, Murk E
Cc: PINEDA, FRANCISCO
Subject: RE. Pip Tags and Casing
7" is so we can run a long string instead of a tieback and still cement   If we had run 7-5/8" we would not have been able to cement as a long string with the amount of casing available, and would have had to double Hie source -3000' extra to bring ilie 7-5/8" above Hie 11-7/8" lianger a few hundred feel.   We did not have this pipe in stock or easily available, and were able to get *T* from Ncxcn.
Not running the tieback, saves a good deal of time/money as well as reduces complexity due to the conventional casing hanger or having to run a second packer and PBR assembly for the Versaflex hanger. If you want more details let me know.
We will take care of getting the pip tags.   Do you want the casing hanger one moved to the top of the cross-over instead?
Thanks
Brian

From: Dobbs, Sarah
Sent: Wed Mar 31 21:15:192010
To: Morel, Brian P
Subject: RE: Pip Tags and Casing
Importance: Normal

Yes, that is great.   Thanks.

Sarah Elisabeth Dobbs
BP Gulf of Mexico Deepwater
Completions Engineer

Figure 3. A chain of email messages during the BP/Horizon preparation to cap off the well. (Highlights added by this author. The chain has been re-arranged chronologically—from earliest to last—to facilitate readability.)

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Conflation of social media with technical/scientific communication

The analysis of the emails prior to the BP/Horizon oil rig explosion and following the Skokie landslide appears to indicate that writers tend to conflate technical/scientific correspondence with that of social media sites, such as Twitter, Pinterest and Facebook, as well as with social texting. This conflated style is either truncated, another cause of information poor messages, or rambling, including personal and irrelevant information. In addition, it is often more informal than traditional technical/scientific correspondence.

Truncated messages The short, brief style of messages appears to be caused by (1) the writer's adoption of social media style and/or (2) the writer's failure to recognize that readers of technical/scientific messages differ from those on social media sites.

1. Accustomed to limiting messages to the 140-character requirement for Twitter and the brief captions on Pinterest, writers appear to adopt a similar abbreviated style for technical/scientific correspondence. The average length of the six threads on the chain in Figure 1 is 18 words with two (Krug and Poulos) of the threads only 4 and 6 words respectively. Krug's message is not even a complete sentence. The message from Guy Bertini mentions a trend but does not indicate whether this is acceptable or not and the message from Pozzi does not explain the reason for the decision to stop monitoring the soldier pile. Although Figure 2 contains a long thread of almost 250 words, the other threads range from only 3 to 20 words.

2. The writers of many of the BP/Horizon messages appear to perceive their readers as similar to their readers on the social media sites they frequent. Readers on such sites as Facebook and Pinterest are usually aware of the writer's background and recent experiences, having followed the story of the writer's life for some time. They are satisfied with short snippets of new information (i.e., updates). But in technical/scientific and business environments, readers may be located in different geographic locations as they were during the BP/Horizon oil rig explosion, in which engineers were on the rig and managers were on land. Readers may also have different specialties and be assigned to different divisions. They may even work for different companies, as they did when

the landslide occurred in the Skokie/Chicago area. Subcontractors were on-site but the representatives from the agency that had subcontracted with them to do the work were not.

Sites like Facebook and Pinterest are composed of closed groups of people in which certain knowledge or interests are held in common. Such groups, which can be as large as the African-American community or as small as the members of a single household, appear to fall within what Hall (1976) has defined as a "high context" culture. Hall suggests groups may fall into high or low context cultures, depending on the experiences and knowledge that the members of the group hold in common. Messages in high context cultures contain little or no background information and often omit details because it is assumed [correctly] that readers already have the background information and are knowledgeable in the topics under discussion. Readers included in a Facebook or Pinterest group have usually been involved in reading a writer's posts for a period of time and are knowledgeable about certain aspects of the writer's life and interests so that often the writer does not have to provide background information or details that have been discussed previously.

A problem occurs in technical/scientific communication when writers mistakenly perceive that their readers—employees, managers, clients and subcontractors in large corporations and organizations—compose a high context group. As the emails in Figures 1-3 demonstrate, readers are often in different organizations and assume different roles in those organizations. The readers of messages in such situations compose a low context culture. Even though they may know each other from having worked together on previous projects, they may only be in touch with each other sporadically on a particular assignment and may not be familiar with all of the decisions made previously. Dobbs (Figure 3) had to ask about the background of the 7" liner. Dougherty (Figure 4) early in his letter indicates he has "worked together [with his readers] so many times" but he doesn't know whether his readers have already considered his idea. He states in the final sentence to the very long first paragraph, "I suspect many or all of these have been gone over by you guys already." Engineers and managers often need background information and elaborated details to understand a message. When writers fail to realize

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that they are writing in a low rather than a high context environment, they may omit information their readers need to complete a task or make a decision.

Rambling messages The tendency to include personal information and narratives not only increases the number of words in a message, but may delay the presentation of the main point, creating a text that may cause readers to stop reading, which is what the Columbia Accident Investigation Board (2003, p. 169) suggested probably occurred when the NASA team received the letter in Figure 5.

This letter was written to people who were working 24/7 to figure out the location of the damage and the size of the damage caused to the Columbia Shuttle when a piece of foam came off on liftoff and hit the spacecraft. The letter contained the best guess "breach of the wheel well" of all the information coming in," but it was located in the middle (line 8) of the very long introductory paragraph [highlighted by this author].

Hi David,
I talked to Carlisle a bit ago and he let me know you guys at MOD were getting into the loop on the tile damage issue. I'm writing this email not really in an official capacity but since we've worked together so many times I feel like I can say pretty much anything to you. And before I begin I would offer that I am admittedly erring way on the side of absolute worst-case scenarios and I don't really believe things are as bad as I'm getting ready to make them out But I certainly believe that to not be ready for a gut-wrench-ing decision after seeing instrumentation in the wheel well not be there after entry is irresponsible. One of my personal theories is that you should seriously consider the possibility of the gear not deploying at all if there is a substantial breach of the wheel well (color mine). The reason might be that as the temps increase, the wheel (aluminum) will lose material properties as it heats up and the tire pressure will increase. At some point the wheel could fail and send debris everywhere. While it is true there are thermal fuses in the wheel, if the rate of heating is high enough, since the tire is such a good insulator, the wheel may degrade in strength enough to let go far below the 1100 psi or so that the tire normally bursts at. It seems to me that with that much carnage in the wheel well, something could get screwed up enough to prevent deployment

and then you are in a world of hurt. The following are scenarios that might be possible...and since there are so many of them, these are offered just to make sure that some things don't slip thru the cracks...! suspect many or all of these have been gone over by you guys already:

1 People talk about landing with two flat tires...! did too until this came up. If both tires blew up in the wheel well (not talking thermal fuse and venting but explosive decomp due to tire and/or wheel failure) the overpressure in the wheel well will be in the 40 + psi range. The resulting loads on the gear door (a quarter million IDS) would almost certainly blow the door off the hinges or at least send it out into the slip stream. ..catastrophic   Even if you could survive the heating, would the gear now deploy? And/or also, could you even reach the runway with this kind of drag?
2.. The explosive bungles...what might be the possibili-ty of these firing due to excessive
heating?
If they fired, would they send the gear door and/or the gear into the slipstream?
3. What might excessive heating do to all kinds of other hardware in the wheel well...the hydraulic fluid, uplocks, etc? Are there vulnerable hardware items that might prevent deployment?
4. If the gear didn't deploy (and you would have to consider this before making the
commitment to gear deploy on final) what would happen control-wise if the other gear is down and one is up?
(I think Howard Law and his community will tell you you're finished)
5. Do you belly land? Without any other planning you will have already committed to KSC.
And….
Admittedly this is over the top in many ways, but this is a pretty bad time to get surprised and have to make decisions in the last 20 minutes. You can count on us to provide any support you think you need.

Best Regards,
Bob

Figure 4. Dougherty sends a rambling email to colleagues in another geographic location, suggesting the consequences of the flying tile to the Columbia Shuttle. (Highlights by this author)

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Informal style In addition to adopting a truncated or rambling style of messaging found in social media, writers also often use a style in their salutations and closings that is more informal than that previously used in business correspondence, including the use of slang and incomplete syntactic structures. In assuming an informal style, writers may insult their readers in their salutations or mislead readers by selecting a word that approximates the meaning they wish to convey rather than using the precise term or phrase. In Figure 2, Dobbs starts her letter with "Guys," which may have a gender connotation for those before the Millennial generation. She probably would have been disturbed if one of the men had sent a letter to the "Gals" or "Ladies." Even for the Millennial generation and beyond, the term connotes familiarity that may or may not be acceptable to the recipient (Metcalf, 2016). She also uses the informal 'y'all,' a regionalism which is often used in oral communication but not in standard American business communication.

The email in Figure 5 relates to the situation with the Columbia Shuttle in 2010 as engineers try to figure out what exactly occurred when the tile flew off the shuttle and the consequences of that mishap. The email, which provides an insight into Dougherty's emotional response to a message he has received, includes language that he might not have used had he been writing a traditional memorandum. In the first thread of the chain, he writes "I'll bet there are a few pucker strings pulled tight," "it's crazy to even hit the deploy gear button," "you're dead in that case," and "My two cents" —all language more suitable to a response on a chat site.

-----------Original Message
From: Robert H. Daugherty
Sent: Monday, January 27, 2003 3:35 PM
To: CAMPBELL, CARLISLE C, JR (JSC-ES2) (NASA)
Subject: Video you sent

WOW!!!

I bet there are a few pucker strings pulled tight around there!

Thinking about a belly landing versus bailout ....

(I would say that if there is a question about main gear well burn thru that its crazy to even hit the deploy gear button...the reason being that you might have failed the wheels since they are aluminum..they will fail before the tire heating/pressure makes them fail..and you will send debris all over the wheel well making it a possibility that the gear would not even deploy due to ancillary damage...300 feet is the wrong altitude to find out you have one gear down and the other not down...you're dead in that case)

Think about the pitch-down moment for a belly landing when hitting not the main gear but the trailing edge of the wing or body flap when landing gear up... even if you come in fast and at slightly less pitch attitude...the nose slapdown with that pitching moment arm seems to me to be pretty scary...so much so that I would bail out before I would let a loved one land like that.

My two cents.
See ya,
Bob

From: "CAMPBELL, CARLISLE C., JR (JSC-ES2) (NASA)"
To: "'Bob Daugherty'"
Subject: FW: Video you sent
Date: Mon, 27 Jan 2003 15:59:53 -0600
X-Mailer: BInternet Mall Service (5.5.2653.19)

Thanks. That's why they need to get all the facts in early on-such as look at impact damage from the spy tele-scope. Even then, we may not know the real effect of the damage.

The LaRC ditching model tests 20 some years ago showed that the Orbiter was the best ditching shape that they had ever tested, of many. But, our structures people have said that if we ditch we would blow such big holes in the lower panels that the orbiter might break up. Anyway, they refuse to even consider water ditching any more~I still have the test results[Bailout seems best.

Figure 5. Dougherty responds as if he had received a social media text from a friend to a previous message. (Threads are listed in chronological order—first to last--to facilitate reading.)

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Inclusion of personal information The (con)flation of social media genres with technical/ scientific ones often leads writers to include personal information that is not related to the focus of a message, resulting in a TMI response (Too Much Information). The email thread in Figure 6, which was sent on April 17, three days before the BP/Horizon oil rig blowout, is a prime example of this error. It was written by an engineer on the rig to a manager on land. In light of the results of the problems discussed in the email, it is spine chilling when he comments, "I've got to go to dance practice in a few minutes," and concludes with an exclamation point, indicating joyful exuberance, "We're dancing to the Village People!"

> *David, over the past four days there has [sic] been so many last minute changes to the operation that the WSL 's [well site leaders] have finally come to their wits end The quote is —flying by the seat oj our pants. Moreover, we have made a special boat or helicopter run every day.*
> *Everybody wants to do the right thing, but. this huge level of paranoia from engineering leadership is driving chaos. This operation is not Thunderhorse [one of the world's largest rigs ever built. The rig was damaged by Hurricane Dennis.] Brian has called me numerous times to make sense of all the insanity. Last night's emergency evolved around 30 bbls [barrels] of cement spacer behind the topping and how it would affect any bond logging (1 do not agree with putting the spacer above the plug to begin with). This morning Brian called me and asked my advice about exploring other opportunities both inside and outside of the company.*
> --
> *John, I've got to go to dance practice in a few minutes- Let's talk this afternoon, for now, and until this well is over, we have to try to remain positive and remember what you said below - everybody wants to do the right thing. The WSLs will take their eve from you. If you tell them to hang in there and we appreciate them working through this with its (12 hours a day for 14 days) - they will. If should be obvious to all that we could not plan ahead for the well conditions we 're seeing, so WE have to accept some level of last minute changes.*

> *We 've both [been] in Brian's position before. The same goes for him. We need to remind him that this is a great learning opportunity, it will be over soon, and that the same issues - or worse - exist anywhere else. I don't think anything has changed with respect to engineering and operations.*
>
> *Mark and Brian write the program based on discussion "direction from you and our best engineering practices. If we had more time to plan this casing job, I think all this would have been worked out before it got to the rig. If you don't agree with something engineering related, and you and Gregg can'i come to an agreement, Jon or me gets involved. If IT'S purely operational, it's your call.*
>
> *I'll be back soon and we can talk,*
> *We're dancing to the Village People!*

Figure 6. David postpones providing assistance to the men on the rig, explaining his personal reasons for delaying his help. (Highlights by this author. Threads have been listed chronologically-first to last—to facilitate reading.)

Failure to provide for readers' reading patterns

Previous research has indicated that people read hard copy in a "T" pattern, reading the first paragraph and then skimming down the middle of the following paragraphs. New research indicates that people reading emails and texts follow an "F" pattern (Nielsen, 2006; Biedert, Buscher, & Vartan, 2012), reading the first sentence, skimming the remainder of the paragraph, reading the beginning of the second paragraph and then skimming down the left margin of the remainder of the document. If important information is included in the middle, it is usually missed. Thus it can be deduced that those reading David's email in Figure 5 probably never read his discussion of the tire wheel that provided what was probably the closest description the engineers had of the actual situation.

Asynchronous communication

Because electronic correspondence tends to be brief and often omits necessary background information and details, it is a poor medium for communicating complex information or providing a forum for conflicting ideas. However, it is used for just these

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purposes. Rather than a face-to-face meeting or a telephone discussion, people often prefer to use electronic media, believing mistakenly that emails and texts provide the same kind of two-way communication that a telephone provides. But the perception that electronic communication is two-way and that conversations occur simultaneously and in real time is false. They are asynchronous (Ashley, 2003).

During a telephone conversation, a person can question an aspect of a description, ask for the definition of a term, or request a fuller explanation of a topic and receive an immediate response, even if it is "I don't know or "I'll get back to you." However, during an email or text conversation, the communication can be suspended before a response is made. Of the approximately half of all messages that people read, only about one third of these ever receive a response (Skovholt, 2009).

Based on the previous statistics, it appears that time between messages in an email or text chain may range anywhere from a few minutes to several days and up to two weeks. These gaps in time have numerous causes. Participants may leave a chain before it is concluded because they have turned to other work. They may not perceive that the message is sufficiently important to require an immediate response. They may also need time to acquire the requested information. Messages requiring more than a quick response are often put aside to be worked on later (Stack, 2009).

Although reading and responding to a message requesting attendance at a meeting can be done in this fashion, reading and responding to a message that concerns a critical engineering decision, such as the one in Figure 6, probably cannot be. Because of the ease of sending electronic messages, other forms of media are often rejected. Yet, if issues are complex or open to misunderstanding, multiple forms of communication, including the telephone, hard copy letters/memoranda sent by snail mail and fax, and person-to-person meetings may need to be used. Both the telephone and person-to-person meetings provide real time, one-on-one opportunities to discuss a topic or clarify a misunderstanding during a single time slot, not over a period of time (Derks & Bakker, 2010; Cheese, 2015).

Walz perceives the complexity of an issue in Figure 7 and recognizes the need to discuss the discrepancies he perceives over the telephone. He ends the thread by stating, "I will call you directly."

From: Walz, Gregory S
To: Guide, John
Sent: Fri Apr 16 00:50:27 2010
Subject: Additional Centralizes John,
Halliburton came back to us this afternoon -with additional modeling after they loaded the final directional surveys, caliper log information, and the planned 6 centralizers. What it showed, is that the ECD at the base of sand jumped up to 15.06 ppg. This is being driven by channeling of the cement higher than the planned TOG We have located 15 Weatherford centralizers with stop collars (Thunder Horse design) in Houston and worked things out with the rig to be able to fly them out in the morning. My understanding is that there is no incremental cost with the flight because they are combining the planned flights they already had. The maximum they could fly is 15. The model runs for 20 centralizers (6 on hand + 14 new ones) reduce the ECD to 14.65 ppg, which is back below the 14.7+ ECD we had when we lost circulation earlier.

There has been a lot of discussion about this and there ore differing opinions on the model accuracy. However, the issue, is that we need to honor the modeling to be consistent with our previous decisions to go with the long string. Bretl and 1 tried lo reach you twice to discuss things. David was still here in the office and I discussed this with him and he agreed that we needed to be consistent with honoring the model.

To be able to have this option we needed to kick things off at 6:00 pm tonight, so I went ahead and gave Brett the go ahead. We also lined up a Weatherford hand for installing them to go out on the same flight. I wanted to make *su*~ thafwcdid not have a repeat of the last Atlantis job with questionable centralizers going into the hole. John, I do not like or want to disrupt your operations and I am a full believer that the rig needs only one Team Leader. I know the planning has been lagging behind the operations and I have to turn that around. I apologize if I have over step my bounds.

I would like to discuss how we want to handle these type of issues in the future. Please call me tonight if you want to discuss this in more detail. *Gregg*

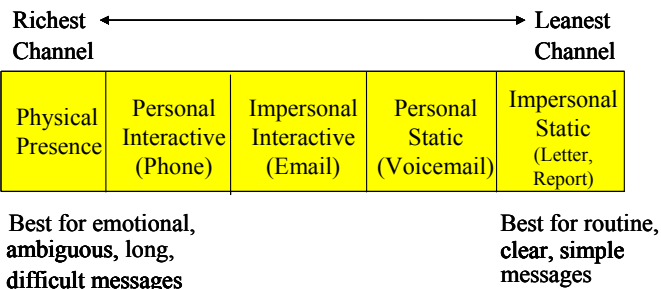Drilling Engineering *Toon* Leader QoM Drilling & Completions Office: I

Cell:
E-Mail:

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From. Guide, John To: Walz, Gregory S Sent: Fri Apr 16 12:48:11 2010

I just found out the stop collars are not part of the centralizer as you stated. Also it will take 10 hrs to install them. We are adding 45 pieces that can come off as a last minute addition. I do not like this and as David approved in my absence I did not question but now I very concerned about using them

From: Walz, Gregory S
Sent: Friday, April 16, 2010 12:53 PM
To: Guide, John
Subject: Re: Additional Centralizers

I agree. This is not what I was envisioning. I will call you directly

Gregg

Sent from my BlackBerry

From: Guide, John
Sent: Fri Apr 16 18:27:43 2010
To: Sims, David C
Subject: FW: Additional Centralizers
Importance: Normal

See below, I left a message on your cell phone.

Figure 7. Walz suggests using a telephone to further discuss the complex issue on this email (Highlights by this author. Threads in the chain are listed in chronological order to facilitate reading.)

Laura Stack, President of an international consulting company in Denver, Colorado, claims that "Communication becomes richer as you add human elements like voice, tone, facial expression and physical expression." She has developed a diagram (Figure 8) ranging from person-to-person communication for ambiguous, long, or difficult messages to letters and reports for clear, simple messages. She places email in the middle of the range (2009).

While electronic mail may not be the best choice for discussing complex topics, it can serve to provide readers with pre-call information that they may need in order to have an informed discussion on a telephone

Richest Channel				Leanest Channel
Physical Presence	Personal Interactive (Phone)	Impersonal Interactive (Email)	Personal Static (Voicemail)	Impersonal Static (Letter, Report)

Best for emotional, ambiguous, long, difficult messages

Best for routine, clear, simple messages

Figure 8. Channels of Communication (Stack, 2009).

or person-to-person. Just after the landslide in Skokie, Seimetz, an attorney for the CTA, sends the email in Figure 9 to Ron Hill with MWRD, indicating her frustration in being caught in a game of telephone tag. In an effort to prepare Hill to discuss the need for additional borings to shore up the embankment, she sends him background information for her forthcoming request, thus eliminating the need to provide that information in the telephone call and, instead, allowing her to spend the time discussing whether or not Hill can accede to her request.

Recommendations

There were numerous causes for the crisis situations discussed in this article, including the defective environments created by the various organizations that sanctioned the "normalization of deviance" and that repressed negative criticism. However, the Columbia Accident Investigation Board (2003) also noted as a root cause the failure of writers to communicate necessary information clearly and in a timely manner to readers.

To avoid some of the problems associated with electronic messages that have been discussed here, I offer the following recommendations:

1. The most important information should be located at the beginning of message.
2. Electronic messages should be written to provide for the reader's 'F' reading pattern.
3. All necessary information should be included in a single thread. The reader should not need to request more information.
4. Readers' prior knowledge, wants, and needs should be recognized by providing all of the background information and details readers require to make a decision or take action.
5. If a message requires time to obtain information, the responder should notify the person who sent

Carolyn Boiarsky

From: Seimetz, Karen <kseimetz@transitchicago.com>
Sent: Wednesday, May 20, 2015 5:47 PM
To: Hill, Ronald
Subject: Yellow Line

Hi Ron: I tried you one more time this evening but did not reach you following our relentless game of phone tag today. Hopefully we can talk in the morning on a few items.

One of the items is that CTA would like MWRD as soon as possible to make a formal request of Walsh to do additional soil borings beyond the two that Walsh is proposing in the area where the soil collapsed. CTA believes that in order to implement a project-wide solution that will avoid/mitigate similar, future incidents along the entire project, a greater number of borings are necessary, not just in the obviously disturbed soil area around the east ERS, but up to and including the west ERS site and, to the extent necessary, the north side of the embankment as well. Walsh is suggesting that they will do the additional borings that CTA is requesting if MWRD directs it to do so. Can MWRD make this request?

I look forward to talking to you tomorrow.

Karen G. Seimetz
General Counsel
Chicago Transit Authority
(312) 681-2900
kseimetz@transitchicago.com

Figure 9. The problem with using the telephone (i.e., telephone tag) for communicating.

the request that the message has been received and that a response will be forthcoming as soon as possible. This relieves the reader from some of the pressure to respond, thus preventing the responder from giving the writer only partial information in an effort to respond quickly, and it relieves the writer's anxiety, wondering if the message was received.

6. The conventions for business/technical correspondence instead of social media should be applied.
7. Personal and irrelevant information should not be included.
8. Issues that are complex or controversial should be discussed via telephone or in-person.

    Note: The messages in this article have been obtained through the U.S. Freedom of Information Act (FOIA) and reproduced exactly as they were obtained.

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Articulating Value Amid Persistent Misconceptions about Technical and Professional Communication in the Workplace

By Emily January Petersen, Weber State University

Abstract

Purpose: The current conditions of technical and professional communication (TPC) practice reveal that the field has work left to accomplish in terms of proving value across disciplines. This article suggests that articulating the value of TPC is an ongoing process, particularly for practitioners, who have found ways to combat stereotypes.

Method: Findings are based on 39 qualitative, semistructured interviews with female practitioners of TPC. Participants were solicited across the United States and varied in age, class, industry, organization, ethnicity, socioeconomic background, sexual orientation, and marital/family status. This article uses feminist research methodologies, with data from semistructured interviews analyzed through feminist content analysis.

Results: The data suggests that TPC is still considered to be expendable in workplaces. Participants highlighted the misconceptions and mischaracterizations of their work, including the myths that TPC work is cosmetic, secretarial, unarticulated, unnecessary, invisible, and unquantifiable. However, practitioners are moving forward despite these misconceptions. They face a host of pressures, but these conflicts are opportunities to prove value and change misconceptions.

Conclusion: Devaluation continues to permeate the profession, but practitioners have become skilled at combatting it. They know that educating others on the value of TPC is an ongoing project, highlighting the ability of practitioners to be an integral part of an expanding knowledge economy, all-edge adhocracies, and unique and networked organizations. Practitioners and scholars must continue to challenge and change stereotypes about TPC.

Keywords: Value, Stereotypes, Practitioners, Workplaces

Practitioner's Takeaways

- Practitioners must advocate by explaining, performing, and making visible the innovative and important work of TPC. Educating managers and colleagues about the value of TPC continues to be a critical part of the workplace experience.
- Practitioners may perpetuate instrumental characterizations of TPC by acting as proofreaders. Practitioners must engage in complex documentation and collaborative tasks and avoid contributing to commodity writing by anticipating and driving change (Ames, 2003).
- Practitioners should claim authority over their work and articulate its impact on many stakeholders and organizational processes.
- Practitioners must use interpretive conventions and rhetorical analyses to determine ways of speaking about accomplishments that mirror the expectations of the organization.

Emily January Petersen

Introduction

Research often emerges from personal places, and this article draws on research I conducted because of my experiences as a technical writer and editor. As a 21-year-old college graduate with an English degree that emphasized editing and technical writing, I searched for jobs with confidence. However, after a week of temp work as a typist at a law firm, another week as a temp proofreader for a direct mail company, and an interview that ended with the declaration that I was not even qualified to be a secretary, I found myself discouraged. I eventually found a permanent position as a secretary for a large nonprofit corporation's security department, where they needed somebody who was good with language to proofread and distribute a daily document. While this job eventually led to a promotion to associate editor (the main writer of that document and other reports), the road there was not easy. I graduated from college with what I thought were important skills, and I had purposefully chosen the technical and professional communication (TPC) track in order to be employable. Yet I faced skepticism and devaluation. It seemed that I had earned a degree in order to become an administrative assistant without a future in TPC. I learned that my education and skills were not valued.

Practitioners face continued stereotyping, according to the data I collected from 39 interviews with female practitioners. We know this stereotyping must be combatted, and scholars have consistently argued that we must move away from low-status characterizations by situating our work as symbolic-analytic (Johnson-Eilola, 1996) and rearticulating value away from service and support roles (Johnson-Eilola, Selber, & Selfe, 1999). This rearticulation is happening, and it occurred individually among the practitioners I interviewed. For example, Jane surprised an engineer by adding code to his documentation. Jane said, "[H]e had a new respect. Not just for me, but for the field." Through the stereotypes recounted in this article, we see continued opportunities for practitioners to rearticulate their work within specific contexts.

The purpose of this article is to reflect some of the current conditions of TPC practice and recognize that we are still working on issues of value across disciplines. My data shows that the field has work left to accomplish in terms of proving value, as the myth that TPC is expendable, perhaps because it is a luxury,

continues to thrive in the organizations for which participants worked. Participants highlighted several of the misconceptions and mischaracterizations of their work, including the myth that TPC work is cosmetic and therefore unskilled and comparable to the work of administrative assistants. Despite these characterizations from colleagues, practitioners are dedicated to proving their value, as they see these conflicts as opportunities to change misconceptions. Practitioners know that TPC crosses boundaries and is therefore networked in a way that no other profession currently is. TPC resists siloing, builds teams and relationships, and promotes human-to-human and human-to-object interaction. TPC must continue to make visible its value, or problems of misconceptions, stereotypes, and devaluation will persist.

TPC flexibly fits into new types of workplaces and platforms, demonstrated by embracing new media and taking forms that are digital (websites and social media), aural (podcasts), and extrainstitutional (hobby communities and freelancing) and making them part of the TPC landscape. Specifically, one participant used podcasting as a way of informing users of the technological processes of knitting (see Petersen, 2016). Increased visibility of symbolic-analytic work within the economy gives practitioners the environment they need for engaging in meaningful work that can be highlighted as innovative within organizations. Practitioners and scholars alike must continue to contribute to the conversation about how TPC fits into these emerging situations and how TPC can bolster changing organizations.

The type of work that many practitioners do is connected to what Spinuzzi (2015) defined as all-edge adhocracies, a result of the metamorphosis of the workplace from bureaucracy to adhocracy. All-edge adhocracies are agile and reliant on "always-on, all-channel connections among specialists in open networks" (p. 28). Knowledge work is central to this new way of organizing workplaces:

> Knowledge work is, simply put, work that involves thinking about, analyzing, and communicating things rather than growing or manufacturing things. It includes occupations such as graphic design, web development, and copywriting. It involves specialist work, it tends to be project oriented, and its products tend to be symbolic (designs, working websites, text) and thus electronically transportable,

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circulable through information and communication technologies. (p. 60)

In other words, TPC is knowledge work, and what it contributes to organizations is invaluable within a new economy that is transforming from bureaucracies to adhocracies. According to a U.S. Department of Labor report, "65 percent of today's schoolchildren will eventually be employed in jobs that have yet to be created" (qtd. in Wolfe, 2013). While particular organizations may not yet understand the value of TPC, the economy does, as it is moving toward digital and distributed knowledge work (Ferro & Zachry, 2014; Spinuzzi, 2007). Therefore, TPC practitioners are already engaged in the type of work that has become most valuable to many types of organizations. Practitioners are poised to continue to dominate in the skills necessary for networking across and in-between fields and organizations (Slattery 2007). The data in this study reveals persistent misconceptions, but the purpose is to highlight how practitioners have combatted such perceptions through the articulation of the importance of knowledge work.

This article will first outline the method I used for gathering and analyzing data, which comes from a larger project on women's experiences in the TPC workplace. Next, I will share the misconceptions that persist through practitioners' stories, which highlight how to solve, manage, or temper many of the problems presented. Lastly, I conclude with specific suggestions for practitioners and academics for combatting the persistent problem of the devaluation of the profession.

Method

Findings are based on 39 qualitative semistructured interviews with self-identified female practitioners of TPC. This article presents a portion of a research project about how women in TPC experience work and the workplace. The following research questions guided the larger study:

- How do female practitioners define the field and the work they do as technical and professional communicators?
- What elements of the workplace are relevant to the experience of women as practitioners?
- How do women enact change on the workplace via genres, practices, tools, and texts?

- What are the constraints and affordances of their rhetorical situations (Grant-Davie, 1997) as female workers?
- In what ways are female practitioners engaged in their own problem solving?

The findings that make up this article surprised me, as I expected the women I interviewed to express mostly gender-related problems at work, although I had experienced the devaluation of TPC over a decade ago. The work of TPC as a whole continues to be misunderstood by others, as these stories reveal, despite the fact that scholars have discussed the urgency of articulating value previously and thoroughly (Carliner, 1997; Johnson-Eilola, 1996; Redish, 1995).

The following interview questions from the larger study of women's experiences in the workplace led to data about the devaluing of TPC for all practitioners, male or female.

- Do you feel valued at work?
- What are some of the conflicts you have faced at work, and how do you handle conflict?
- What are some misconceptions about your work?
- Have you been treated differently than your colleagues?
- What kind of work do you perform that is not compensated or part of your job description?
- What kinds of stress do you experience at work?

The data from these questions revealed that the devaluation of TPC deserves highlighting once again, especially given that the practitioners had ideas about how to challenge the myths. The stereotypes are not new; however, the fact that practitioners continue to face devaluation is an urgent problem that should concern us. While I focused on female practitioners as part of a larger project, the misconceptions they described are likely familiar to all practitioners.

After receiving approval from my Institutional Review Board (IRB), I solicited participants in various U.S. locations; respondents lived and worked in Washington state; Washington, D.C.; California; Texas; Utah; Florida; Virginia; Maryland; Arizona; Massachusetts; Illinois; Idaho; and Colorado. They varied in age, class, industry, organization, ethnicity, socioeconomic background, sexual orientation, and marital/family status. I conducted 31 of the interviews by phone, 7 of them face-to-face because of geographic

proximity, and 1 via email due to the respondent's hearing impairment. Participants included 6 women in their 20s, 10 women in their 30s, 13 women in their 40s, 5 women in their 50s, and 4 women in their 60s. They represented organizations in publishing, software (with the most participants at 14), oil and energy, education, manufacturing, science, and the non-profit sector. Four of the participants were self-employed. Twenty of the women had the title of technical writer, while others were called editors, analysts, developers, and copywriters. A majority of the interviewees were Caucasian, while there was one person in each of the following categories: African American, Hispanic, Persian, and biracial. One participant did not disclose her ethnicity. Most of the women identified as heterosexuals, while four disclosed being lesbians and three did not disclose. All names used in this article are pseudonyms.

I layered various feminist methodologies to design this study. First, I used a feminist standpoint perspective—that "knowledge is situated and perspectival and . . . there are multiple standpoints from which knowledge is produced" (Hekman, 2004, p. 226)—to gather interview data. I used feminist standpoint theory because practitioners' experiences and innovations are a form of knowledge the field can and should tap into. Second, I analyzed data through qualitative feminist content analysis, which Leavy (2000) described as "the systematic study of texts and other cultural products or nonliving data forms" from a feminist perspective (p. 227). Such analysis is used to "see not only what is there but also what is missing, silenced, or absent. The goal of this kind of research is . . . to deconstruct the text to see what is revealed, what emerges, what juxtapositions develop" (p. 228). Feminist content analysis and grounded theory are similar, and Portewig (2011) explained grounded theory as "a methodological approach adopted from sociology . . . . [which] focuses on generating a theory from data rather than verifying theory" (p. 150). I used these forms of content analysis in order to understand women's experiences from a feminist perspective and in order to allow themes to emerge from the semistructured interviews, rather than proving a hypothesis.

I transcribed all interviews and observations, looking for themes and categories as I engaged with the data. I also asked and developed questions about the data while reading and transcribing. While this method revealed much about women's experiences in the TPC

workplace, data also emerged about the misconceptions of TPC practice. The data in this article represents that piece of the larger study: specifically, how the field is perceived by others and experienced by practitioners.

My analysis resulted in research notes made in the margins (both handwritten and electronic) on the transcribed interviews, with emerging themes represented. I used the following words and phrases from the specific list of interview questions (bulleted above) to identify misconceptions about TPC work: "treated differently," "valued," "uncompensated," "stress," "misconceptions," and "conflict." Because the data is qualitative, these key terms directed me to various explanations and stories about the topic, and after compiling that data into a new document and analyzing it for themes, the descriptive categories represented in the analysis of this article emerged.

Responding to Misconceptions

Many organizations where practitioners work are bureaucracies, which rely on a division of labor, narrow specializations, hierarchy, and control (Spinuzzi, 2015, p. 22). Bureaucracies are "not so good for innovation and adaptation" (p. 23). When we look at TPC in the atmosphere of the traditional workplace, it is easy to view it as cosmetic, superfluous, reducible, menial, incapable, and service-oriented because it is in a supportive role for other fields and types of work: science, engineering, computer programming, and so forth. However, when we broaden our scope and definition of the workplace to include emerging technological trends and nontraditional workplaces like the home, the freelancer's space, project teams across companies, and the contractor's workspace—these in-between adhocracy spaces—the knowledge work of TPC becomes central. When characterizing TPC, looking at the fringes along with traditional workplaces gives us a broader sense of how workers are exploding TPC work, participating in knowledge work, and networking beyond the confines of bureaucracies.

As Ames (2003) outlined, practitioners should anticipate and react to changes in order to lead the industry and contribute to driving the changes. Extrainstitutional spaces where TPC flourishes are also representative of how organizations might continue to evolve. In my larger study, I found women in TPC using extrainstitutional workspaces to balance work

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and family life, innovating in ways that connected TPC skills with what they were passionate about, and networking within bureaucracies to overcome siloing. As bureaucracies continue to change and adjust to new types of knowledge work and collaboration, practitioners will be poised to continue to articulate their value in such circumstances and drive changes. Ames (2003) argued that an individual practitioner should be a strategic contributor who "understands business, customers, and competition; contributes to strategy and business process improvement; ensures customers/users are successful; can demonstrate financial impact of information and usability on bottom line; can make business cases for new initiatives; [is] visionary; [and] leads multidisciplinary teams to improve customer/user experience" (p. 10). Such work demonstrates the complexity and strengths of TPC and will allow practitioners to become an integrated part of larger teams.

Previous research has outlined the challenges facing practitioners. Giammona (2004) surveyed and interviewed practitioners and found, "people drawn to this field are often introverted, smart, artistic, creative, perfectionistic, rigid, and fascinated with details of writing and technology" (p. 351). One of Giammona's participants argued that TPC practitioners "have to do it all," such as writing, editing, visual design, user experience design, online publishing, web page development and languages, interactions with users, networking, interviewing, translating, and distributing (qtd. in Giammona, 2004, p. 358). This language closely resembles the language used to describe women's lives as mothers and workers (Slaughter, 2012). Women often juggle both careers and families, and while my larger study focused on how female practitioners did so, my data about misconceptions suggests that organizations and colleagues do not understand the similarly varied roles of practitioners because of skill with technology, writing, rhetoric, and users. Practitioners' work involves multiple roles, and TPC as a field may highlight the complicated and messy nature of contemporary life for both men and women.

Despite this complexity, employers often misuse practitioners or underappreciate them, according to Hart and Conklin (2011). They suggested empowering the workforce through "effective relationships, clear communication, a spirit of initiative, and a willingness to engage in respectful conflict" (p. 114). They saw two-way communication as important in work environments (p. 115). Their findings show that practitioners spend a lot of time working in teams, and I suggest that Hart and Conklin's characterization of communication (both intercultural and cross-gender) might be useful in overcoming some of the lingering misconceptions presented in this article.

Participants' experiences with misconceptions highlight the invisible nature of knowledge work, because practitioners understand what they do as complex, but it may not be as obvious to outsiders. I specifically asked all 39 participants about the misconceptions of TPC and their work with the following question: What are some misconceptions about your work? Nearly every interviewee had an immediate answer to that question, and other misconceptions emerged throughout the stories they told during interviews. Overall, according to the interview data, TPC is misconceived as cosmetic, secretarial, unarticulated across disciplines, unnecessary, invisible, and unquantifiable, which means such workers often feel expendable. However, practitioners know and can articulate the value of their work, revealing that this articulation is and must be a continued concern of the field as a whole.

Cosmetic

That TPC work is cosmetic and not technical or professional is a misconception that emerged 23 times in interview data. Jodi shared, "One of my co-workers was once told to make the documentation look pretty." Alice experienced this daily, with engineers trying to avoid her and her coworkers and assuming that she "only change[d] the format of the document." Catherine laughed about this misconception, and described it as "the make-it-pretty philosophy, and we do so much more than that, but that's still the way it's seen by a lot of people." The philosophy leads to the belief that practitioners are not skilled. Maya explained, "I think that people feel like as long as you have a checklist, anyone can run spell check. Anyone can make sure things are capitalized." Because of these misconceptions, practitioners are devalued or get lumped in with other, less skilled workers.

Jane has developed what she called "an incremental approach," a process that nicely combats the "make-it-pretty" philosophy that frustrated so many practitioners. Jane publishes documentation that is

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usable at a basic level and updates it over time. This is a way of managing expectations, particularly of her manager and of the lead developer of any given project. Such communication is a way of asserting her authority in the workplace, and making sure that those around her know what she is doing and how she is doing it. The approach seems to work, as it created a dialogue that requires subject matter experts (SMEs) to understand what practitioners do. They understand that the documentation is constantly updated and revised according to innovations and changes in conjunction with SMEs, not according to stylistic preferences or aesthetics. As Flannery said, "the last thing you ever want to do is advertise the fact or give any impression that checking grammar is your job!"

Catherine takes a deliberate approach in educating her colleagues. She is the first technical writer to work with a newly acquired team. She attempts to teach them the ways in which she will be an asset to them. To introduce herself, she reaches out to the engineers and tells them she can work with software, graphic design, and error messages. She tries to "keep it as positive as possible but also . . . [sends] them little reminders that 'I'm here.'" Because of her experience, she knows they will have to adjust to the new workflow of having a writer on the team. She does all she can to make that a smooth process.

Secretarial

TPC may be conflated with administrative assistant or secretarial work, yet it is a varied field with communicators who know social media, search engine optimization, analytics, research, documentation, collaboration, networking, language, conventions, rhetoric, and user/audience needs and contexts. Jhumpa explained, "The big misconception is that we just describe the software. No. We tell the user how to do a job. And we tell them how the software can help them do that job." Similarly, Corrie described TPC as a place where "people can be creative [and innovative] in the workplace. It's a constantly evolving field, too." In contrast, secretarial work often involves answering telephones, transcribing, making copies, distributing communication, taking notes, organizing and sending mail, and keeping track of another's files or appointments. While there is certainly some complexity and skill involved in such work, it is very different from what TPC practitioners do.

Corrie, a technical writer with over 30 years of experience, explained that a new position at her company was described as an administrative assistant with 60 percent technical writing. They hired a woman for the job, and "so far she hasn't done any tech writing because they keep giving her other tasks to do that are more admin oriented," despite the fact that the woman who got the job is trained as a technical writer and has the title "Technical Writer." Corrie sees a blatant connection to writing and secretarial work that creates this misconception:

> [In] the old days, the women were the secretaries and they'd take the [notes], they'd do the typing, they'd make letters, they'd take shorthand. . . . So there is a tendency to try to turn a technical writer into something like that.

The comparison of technical writers to administrative assistants was common in my interviews, as participants discussed it 34 times. Characterizations (administrative or secretarial) make it difficult for many practitioners to feel valued or be taken seriously within organizations, especially if they are a lone writer or working in an industry that is not accustomed to employing a TPC practitioner. Hiring a practitioner is considered a luxury, and when new companies become successful enough to do so, they may not completely or immediately recognize the added value. Corrie has resisted the administrative characterization in many ways. She told her colleague who was hired as a technical writer with administrative duties: "I'm going to give [technical writing work] to you and we'll just have to fight that battle. We kind of have to make our own job here." She has also spoken up when SMEs have ignored her in meetings. She has said, "I'm sorry guys, but if you want me to work on this project, you're going to have to talk to me."

Conversely, women might see opportunity in entering a company in administrative assistant work that could lead to a promotion that involves TPC. I experienced this in my early career, as did Edna: "When I graduated from college with a fairly useless B.A. in English, I had taken professional typing in high school[,] . . . I had a brain in my head, and I could type 60 words a minute, so I got several different jobs as an administrative assistant." On the flipside, Jean explained, "There are companies that will take

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secretarial people . . . and just turn them into a writer with no training or anything." Organizations, hiring committees, managers, and colleagues tend to conflate what TPC practitioners do with what administrative assistants and secretaries do.

Of this problem, Anne argued:

> I don't see a lot of guys who get tech comm degrees come into tech comm as an administrative assistant. I've heard that story from women more than once: that that's how they get into tech comm … [M]y husband is pretty much in tech comm. He was in the Navy, he taught on nuclear technology, and then he went out into the real world … He would never be [asked to be] an administrative assistant … [A]nd then most of the support staff was all female, and when they needed someone to cover reception for lunch for answering the phones, that would fall to us, always. The guys never had to answer it.

Women may enter the field by first doing administrative work, but they may also continue to experience being treated as secretaries once they move into TPC positions. Women in TPC tend to be treated as support staff, while men get more professional respect, according to the experiences of the participants in this study. Thirteen of the participants specifically mentioned being asked to perform secretarial work while the men in the office were not. This is tied to the emotional labor that women are often expected to perform. Guy and Newman (2004) argued that emotional labor fills the difference gap between men's and women's work, claiming that "[w]hen women work in 'men's' jobs, they come close to earning equal pay, . . . [but] emotional labor is still expected of them there" (p. 291). In contrast, "sex-typed jobs . . . penalize women the most because these jobs require more 'natural' (that is, unpaid) tasks that are missing from the job description's list of knowledge, skills, and abilities" (p. 292). This sort of labor is unpaid but valuable, as female employees are often tacitly expected to perform it, but it is not as valued as the education and skills learned formally and therefore not compensated through pay. It is intangible, much like the invisibility of women and the invisibility of TPC.

Other participants described doing work that was uncompensated or not part of their job description as a way of helping out where they could because they are salaried employees, and, according to Emmeline, it "falls under the umbrella of professionalism." The practitioners I interviewed performed such work, including assembling paper copies, answering phones, taking meeting minutes/notes, shipping packages, creating posters, planning holiday parties, giving emotional support to coworkers, cutting and serving party cakes, taking email dictations, finding missing office supplies, entering data, organizing mail, sorting, and scanning. While some women told of these tasks in annoyance, especially if they were regularly asked to serve food, other participants characterized themselves as willing and able to help when and where needed. Practitioners have skills across disciplines that organizations often want to utilize and harness; practitioners might need to decide which of those skills are best suited for their particular goals within an organization.

Practitioners reported several ways of dealing with being asked to perform secretarial work. First, they spoke up about why they would not do the work. Lois explained, "When I was younger, they would try to talk me into doing meeting notes and minutes, and now I'm up front about it. I'm like, 'You guys, I'm more knowledgeable than just a secretary.'" Second, they set boundaries. Sandra said, "I definitely don't mind pitching in every now and then, but if it interferes with deadlines or something more important, … then I can't do it." She weighed the situation against other responsibilities and put TPC work first. Third, they recognized when performing such work was useful and proceeded as such. Josephine often took notes at meetings for her own records. She shared,

> There have been lots of times when I have gone into a meeting and started taking notes and realized that people were going to want to have an accurate record of what happened. So I've gone into [many] meetings with that intention, that I would distribute my notes. That doesn't bother me because I'm going to catch what's significant in the meeting, which an executive assistant might or might not. I used to get flown up to the corporate headquarters of the company … specifically so I could take crazy notes on technical stuff and then turn it into something useful. Based on those notes, they developed a new process, and the new process made the company more successful than it had been. It was worth doing.

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She also drew boundaries with her notes, but overall, she found a way to make such work applicable to TPC, and she used the results to improve company processes and therefore carve out a space of value for herself.

In contrast, some practitioners may perpetuate the mere scribe characterization by purposefully acting as administrative assistants or proofreaders, instead of engaging in the complex activities and networks of TPC. Rebecca described: "Basically the scientists write up the report and then I'll edit it for grammar … and then I'll format all their tables and data." Iris said, "I really like grammar and making things clear and concise … so professional writing was kind of perfect for me." TPC professionals reject simplistic descriptions like these because they downplay the complexity of the work and the skill needed to perform it. Because TPC as knowledge work is essential in the emerging economy of all-edge adhocracies, practitioners must engage in complex documentation and collaborative tasks. They must use their skills to improve company processes, contribute to technical knowledge and communication, and advocate for users.

Unarticulated

TPC work may be confused with administrative work because coworkers and managers in other disciplines may not understand what the field contributes. Uneducated colleagues and misconceptions about their abilities and knowledge overwhelmingly frustrated participants. The theme of TPC as unarticulated across disciplines was discussed 49 times in the course of interviews. Jhumpa summed up the problem:

> [U]neducated managers [are] probably my biggest stress … [O]ne of the engineering managers … has absolutely no idea what a documentation person does. As far as she's concerned, the user guide just describes the software. … So every time I change managers, I have to reeducate them as to exactly what we do. I relate that to the fact that our degree has been around for a while but somehow we have not generally communicated our value and exactly what we do over the whole world. We've only done it person-to-person for each manager we've worked for, and it hasn't spread.

She makes the important point that perhaps proving value is something for which we, as a discipline,

are responsible. While efforts have certainly been made toward this (Redish, 1995; Carliner, 1997), Jhumpa also noted that much of this work is done at a personal level. She sees a need to educate managers and colleagues, but she questioned whether or not doing so in a single workplace situation is the right way to highlight the contributions of TPC.

Yet individual conversations about value are necessary. Jennifer suggested, "Nobody is going to advocate for you except for you, so I think in that way you have to make yourself valued." Pearl, the manager of a documentation team, broadcasted her team's value. She gave an internal presentation to the managers of engineering and development teams "to show what all we do and how it is beneficial to the company, because I don't think they understood … so it's a constant education. I'm constantly trying to show them why what we're doing makes sense and provides more value." She makes concrete the value of documentation and gives her managers and others a visual representation, engaging them in a conversation about her team's work. Pearl keeps the conversation about value going by sending reminders to these managers. When her team receives favorable user comments about online documentation, she forwards those messages to her boss. She additionally forwards the articles she has published in *Intercom*, the industry magazine published by the Society for Technical Communication, to show "that the largest technical communication organization … in the world is publishing this in a magazine, which goes to show we are on the right track for the industry with what we're doing with content." She knows her work is valuable and that she's performing competently, but she constantly brings that to the attention of other team managers. This creates respect for her as a documentation manager and for her entire team.

Interviewee Betty explained the importance of technical knowledge earned as a practitioner. She used it to her advantage with SMEs:

> You get to become a subject matter expert in whatever you write about, and if you take that and run with it, pretty soon you've got this enormous bag of technical knowledge that you can reach in and pull out the right piece and throw it into the conversation as needed. You develop credibility quickly if you are able to make a relevant technical observation.

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She used experience as a way of continuing to prove her value to colleagues who may not have realized how much she knows.

Technical writers are included in the U.S. Bureau of Labor Statistics (BLS) *Occupational Outlook Handbook*, updated in December 2015, nearly a year after I began interviewing practitioners. The description references TPC work as "supporting documents to communicate complex and technical information more easily. They also develop, gather, and disseminate technical information through an organization's communications channels" (U.S. BLS, 2015). The median salary is acknowledged as $70,240 per year, and requirements include a bachelor's degree. However, participants were frustrated with the BLS because this information may not always have been accurate.

Jhumpa criticized the BLS, saying, "I don't feel those [BLS statistics] are very representative of professional technical writers. They include every secretary who occasionally formats a document … and it pulled the salary level and experience level down." Professions should not be linked with jobs that lack the same level of education, skill, and knowledge to perform. If they are linked officially, as Jhumpa believed, then they become linked through misconceptions as well. It is essential that practitioners not have their profession grouped with clerical staff. BLS statistics should be a source of aid to practitioners to approach their work with confidence, ask for raises as necessary, and make other strategic "demands" related to their contributions.

Edna experienced the power of official statistics. She explained, "They weren't paying very much because the Department of Labor classifications that they used for technical writers made them administrative [and] … I was classified as administrative." She did not know how true such claims were, but the origin story based on hearsay had to do with a technical writing contractor for the U.S. Coast Guard. The writer complained

> that some people were being paid professionally when they were really secretaries, so the Department of Labor did some investigation to try to determine what the technical writers were. … I was told by a couple of people who interviewed with this Department of Labor person that he hadn't the slightest idea what a technical writer actually does, and apparently nobody sufficiently

explained it to him … [and he] saw them as glorified secretaries.

According to this story, the visiting representative of the Department of Labor downgraded their work status and therefore their salaries. As we see, power differentiations are not often changed through the efforts of one person communicating with another, although such efforts are important and necessary. Power changes might need to occur at higher and different levels, such as with government characterizations and within the academy. Christine saw similar confusion at her organization. She said, "I think people in marketing think that I only do marketing, and people in technical stuff think that I only do technical stuff. I actually do all of it." The variety of skills and expertise that practitioners perform may be invisible to colleagues, government outsiders, and managers who do not see the complete picture of their work interactions.

Unnecessary and Invisible

Interviewees reported 35 instances of colleagues characterizing TPC work as unnecessary or invisible. Participants used phrases like, "they brush you off," "you are the first to go," "they get credit," and "it is hard to get into meetings." Shirley heard the misconception "that it's not useful." Colleagues may engage with user guides or online help as much as customers do, but they might also think that Shirley's hand in creating that documentation was unnecessary and, therefore, she is adjunct to the real work of the company and product. She explained that this is frustrating because, "I sit in sales now, and I can hear them talking about my work every single day. That's part of how they sell the product. … I know they use it." She sees them using the documentation, but she has also heard that what she does is unnecessary. There is space for her to prove her value and give voice to what she is witnessing. She said, "I've seen my own manager go and look at my [online] help to find out the answer to questions." Because she has witnessed her colleagues using her work, she has an opportunity to bring that to their attention. She can speak up and make sure they are aware of how much they use her work and how useful it is. Such misunderstandings provide opportunities for workers to claim successes and draw attention to the usefulness of their documentation. When practitioners see their

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products being used, they can and should make others aware of it.

Because TPC is knowledge work, it can be invisible. Willa said, "I also run into some who say, 'We have people who write stuff? That's not automatically generated?'" Her colleagues did not realize that she existed, as work can easily become siloed and insular within bureaucracies. Similarly, Jhumpa "got an email from an engineer panicking because he had actually sent his project for approval … and they rejected it because it didn't have a user guide." He had skipped over the step where a practitioner writes the documentation. Practitioners are positioned to address this problem in organizations because their work is about making connections and building relationships. They must make their work more visible and connected to those who may most benefit from an education about TPC and the advantages of having practitioners in the workplace. Willa recognized that "some people have just never thought about it. They just don't think about how those words came to be." We have become accustomed to screens and disconnected from the person who wrote the words. Again, Willa's situation is a place where value can be made visible by claiming and owning the work she does and making sure that others know she wrote it.

One way of creating visibility and necessity is to insert expertise into the process. Lois creates outlines for SMEs, to "show them that you have an idea of the bigger picture." She has also taken existing and poorly written documentation "and revamp[ed] one page to show them the difference, and they'll be blown away. They didn't even realize how unusable it was before they see what it could be." She also poses questions about how to improve products, demonstrating her ability to think critically and creatively. She acts without waiting for permission or waiting to be included. She knows her work is valuable and necessary, and she shows organizations her abilities before they have a chance to marginalize her.

Unquantifiable

Documentation specialists may be perceived as not quantitatively valuable, because they do not necessarily earn money for companies. While not many participants discussed this overtly, they mentioned the problem of proving value quantitatively 11 times. Jennifer said:

[W]e're a cost center for the company, and while that is technically true, it annoys me to no end: the idea that we cost the company money in salary [and] that we don't make the company money because we're not selling things. … but in my opinion, we make the product. Sure the sales guys might sell the product and have the contracts come in and be actually producing revenue for the company, but without us, there would be no product.

She is convinced of the value of her work to the organization, and she found a way to let others know by participating in meetings and writing documentation to prove that she deserved a raise equal to that of a male counterpart. Companies are driven by profit motives, and if writers cannot quantify their work, they may occupy a precarious position depending on the company. They may be seen as adjunct to or unnecessary for the "real" work of the company if the organization values profit above all else. Pearl noted, "I try to explain that it's more than just writing a paragraph, because if you added a new feature, there's a lot of other things involved in our jobs." While these women might not directly be making money for their organizations, they are doing much to improve the products and make those products accessible to clients, customers, and users. If what they sell is documentation, like Jennifer's company, then the product is actually produced by practitioners. Their work affects many stakeholders and there is a need for TPC to claim this authority as part of the organizational process. Practitioners must learn how to present the value of their work in ways that employers understand, and quantifying that work is an effective way to do so. It may not always be straightforward, but practitioners can get a sense of how much monetary value their documentation has added to an organization and can report that to managers and colleagues.

One way to create quantitative visibility is through budgets. Gloria explained that her solution is to write up a plan about what she can do for the SME, and then "say these are your options and this is how long it's going to take, and this is how much it's going to cost you." She laughed that they often forget to include her in the budget, so her interoffice communication always includes that part of the process. She consciously includes cost as part of her work communication, reminding colleagues of the monetary value of what she does.

May, as a grant writer, is easily able to quantify the money she has earned for her organization. She reported, "In seven years, I've brought in 10 million

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dollars. Not everybody can do that. And I've made sure that [the boss] knows that number." Her outspokenness about her contributions has led to managers advocating for her with upper management. She knows the conventions of value within her organization and she fit her work into that framework to make herself visible and appreciated. Practitioners in TPC must use interpretive conventions and rhetorical analyses to determine ways of speaking about accomplishments that mirror the expectations of the organization. Sharing a monetary gain may not be possible for all practitioners, but using knowledge of the rhetorical situation to articulate value in a way that complements the organization's goals is possible.

However, some devaluation may be inevitable, as workplaces have a distinct connection to management and profit. Longo (2000) explained, "This linking of knowledge to money through a management technology works to ensure that technical writing students conform to behaviors and attitudes resulting in efficiency and productivity within organizations that have evolved from the application of time management and assembly-line models of production" (pp. 74-75). Practitioners in TPC continue to be part of that assembly line of production within traditional organizations, and they are usually the last in that line. Documentation is written after products have been developed. TPC work is not always linked to money or management, and consequently, practitioners find themselves devalued. They are part of bureaucracies that value profit and efficiency, and practitioners entering this system must learn to navigate it on several levels. Furthermore, technical writing itself plays a role in keeping this system in order, as communication within an organization will move "upward into the management through reports and summaries generated by 'brain' workers at various levels of the system" (Longo, 2000, p. 101). Such awareness gives practitioners an avenue for asserting themselves and the value of their work more officially.

Conclusion

Unfortunately, and despite some of our best efforts, devaluation continues to permeate the profession according to the participants of my study. Even when people compliment her work, Anne laughed at the idea of being valued. She said,

[Y]ou still have this feeling that you're the redheaded stepchild, and you're going to be the first to go because … you're not really providing the actual [product]. … So I'm always cognizant that we could be the first to go, because people don't think that they need us anymore.

Anne felt the precariousness of her work, as did others. However, the work they do is essential in a knowledge economy and for networks and adhocracies that are beginning to expand and replace traditional workplaces.

TPC as a field involves understanding human interaction and the crossing of boundaries with technologies, rhetoric, research, and design. The practitioners in this study work across disciplines, and they know that educating others on the value of TPC continues to be a major concern and ongoing project. Practitioners know how to combat misconceptions because they continue to face it. While their stories may register as complaints, these professionals are committed to showing that their expertise is invaluable to the organizations for which they work and the fields to which they contribute. Their experiences, especially how they respond to misconceptions and combat stereotypes, highlight the ability practitioners and academics have for crossing contexts and articulating value. Perception problems are well documented and identified; the next project is then to change those perceptions and elevate the status of TPC work within a knowledge economy.

For practitioners, the findings suggest that misconceptions persist. The following ideas may promote moving away from these false characterizations within workplaces.

- Practitioners must advocate by explaining, performing, and making visible the innovative and important work of TPC. Educating managers and colleagues about the value of TPC continues to be a critical part of the workplace experience.
- Practitioners may perpetuate instrumental characterizations of TPC by acting as proofreaders. Practitioners must engage in complex documentation and collaborative tasks and avoid contributing to commodity writing by anticipating and driving change (Ames, 2003).

- Practitioners should claim authority over their work and articulate its impact on many stakeholders and organizational processes.
- Practitioners in TPC must use interpretive conventions and rhetorical analyses to determine ways of speaking about accomplishments that mirror the expectations of the organization.

Moreover, I suggest that some of the work of combatting misconceptions can be done within the academy. We need to reach across disciplines so that SMEs see practitioners as a necessary, visible, and indispensable part of the teams they will join once in the workplace. SMEs should enter their careers expecting to work with practitioners, just as practitioners know they must work with SMEs once employed. Instructors can take steps to interact with instructors across university programs to dispel misconceptions and allow our students to practice working together in positive ways before entering careers. We can address this divide by finding ways to collaborate with other disciplines that benefit from TPC. We need to network with students in engineering, marketing, computer science, the sciences, design, and other fields during undergraduate programs to make collaborative and constructive connections. The following are specific ways such work could be accomplished.

- Department and program heads should meet with their counterparts in other disciplines to brainstorm ways of allowing students to formally interact in classrooms and on projects.
- Department and program heads can organize or encourage social situations for students to inform each other of their disciplines and skills to discover mutual beneficence. This can be done through a casual yearly social, regular networking meetings, or even a "speed-dating" activity in which students interview each other with the aim of learning about various disciplines and their connections to each other.
- Instructors can assign projects that require interviewing student SMEs and create assignments that encourage interdisciplinary interaction.

The varied work of practitioners demonstrates that TPC is part of an expanding knowledge economy, all-edge adhocracies, and unique and networked organizations, not marginal to them.

Practitioners engage in TPC because it is human communication, and because they are users, researchers, innovators, technologists, and designers. Their work is threaded through the history of various fields and current practice of TPC and gives us insight into the importance of communicating through multidimensional means. We must continue to challenge and change stereotypes about TPC.

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Do Technical/Professional Writing (TPW) Programs Offer What Students Need for Their Start in the Workplace?
A Comparison of Requirements in Program Curricula and Job Ads in Industry

By Rhonda Stanton, Missouri State University

Abstract

Purpose: This small-scale study investigates the skills and experiences most sought-after by recruiters and hiring managers in entry-level technical writers in the work place. The purpose is to learn whether academic programs offer the course work and opportunities students need. Additionally, I discuss job-ad requirements for entry-level technical writers in the workplace and compare technical/professional academic program offerings with those job-ad requirements.

Method: Recruiters and hiring managers were surveyed to learn their top priorities for skills and experiences. Data from job ads of three job boards was gathered and analyzed, and this data was compared to academic program requirements across the United States.

Results: While technical and professional writing programs are ever-changing and substantially different, there are similarities, and the programs seem to be preparing students well for the workplace.

Conclusion: Most programs require core courses that are similar in name and description and require additional study in an area of expertise or a minor. These core curricula align well to the requirements in entry-level job ads in the industry. More research is needed to learn the best ways students learn in university courses. Additionally, we need to investigate the consistency of internship requirements among programs and encourage industries to consider internship experience as legitimate industry experience.

Keywords: Program Curricula, Job Ad Requirements, Entry-Level Technical Writers, Technical Writing Skills

Practitioners' Takeaway

- A practitioner looking for a job should recognize that not all job boards are the same.
- Many technical writing programs offer course work and workplace experiences (through internships) that can prepare new graduates well for their first job.
- Employers should recognize that not all internships have the same hour or task requirements but, in many cases, can be accepted as authentic workplace experience.

Do TPW Programs Offer What Students Need?

Introduction

Understanding what skills and experiences managers want in new technical writing employees is important to faculty and program directors of technical/ professional writing programs. This should also be a consideration in curriculum design and development. It is equally important that program directors and faculty continually assess the effectiveness of their technical/ professional writing (TPW) program requirements. One way to do this is to compare how the requirements of the program translate to the job market for new technical writing employees. While in college, students are able to gain a breadth of knowledge from a foundational and well-formatted general education program, and they can gain a depth of knowledge and special job-specific skills from the major or emphasis in technical/professional writing. While preparing students to be valuable and prepared employees is only one purpose of their educational experience, giving them a strong advantage as they transition into the workplace is an important consideration to administrators.

Program directors and faculty have been asking some of the same questions for years: Should we be teaching specific software tools or just providing a brief overview of some of the functionality with a few? Do we teach specific methodologies for project management or software development? Or do we give an overview of what several are? Should we require literature courses as part of the academic requirements for a degree in technical writing? Should we have an entire class over ethics, or should we intersperse ethics into every class we teach? Program directors must keep these and other questions at the forefront of their minds as they make sure they offer opportunities for students to become well prepared to enter the workplace.

In this article, I report the findings from a survey I conducted and analyzed where I asked recruiters and hiring managers what top three skills they looked for in an entry-level technical writer. I also conducted a small-scale study where I investigated how program requirements translate into job skills. I looked at job requirements in job ads posted on three job boards that may be used by recruiters in the workplace and by students who are ready to graduate and are looking for their first job. I also examined course offerings and degree requirements of technical communication programs in the United States. My two related research

questions are the following: What skills, exactly, should new technical communication graduates possess in order to land their first job? Does the world of academia in technical communication prepare students to be valuable and effective technical communicators in the workplace?

Research Methods

The research for this study was three-pronged:
- I collected and analyzed survey responses from recruiters and hiring managers who post job openings, interview candidates, and hire entry-level technical writers to learn their opinions about what skills and experiences are essential for potential candidates who have applied for a job.
- I expanded the literature in Lanier's (2009) article where he analyzed the skills called for in recruitment postings for technical writers on the job board Monster.com. To expand his research, I compared job ads on three other job boards I used most often when I was a recruiter in the corporate world. As a recruiter, I did not use the job board Monster.com because of its limitations; therefore, I did not use it for this study. Instead, and for the sake of an equitable comparison, I used the same categories and subcategories Lanier (2009) specified in his research to investigate the three job boards I did use as a recruiter.
- I summarized research on academic requirements in technical/professional writing programs done by Meloncon and Henschel in 2013 and compared their findings to my findings about job-ad requirements. Meloncon and Henschel reported on 65 undergraduate programs in technical and professional writing across the United States and learned that there are specific, identifiable courses that serve as core requirements for most.

Understanding what skills and experiences recruiters and hiring managers are searching for in new employees can help guide academia as program directors make decisions about their curriculum. Additionally, comparing technical/professional writing program requirements directly to job board postings can add support for decisions made by program directors and faculty as they try provide a robust program that offers breadth and depth of knowledge

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to students and prepares them for the workforce as seamlessly as possible. Knowing what industry requires has many implications for technical/professional writing programs and the research we do as we think about curriculum requirements and program assessment. Because my professional career has allowed me to be a teacher of technical writing at the university, to then move to the corporate world and hold titles of technical writer, recruiter and manager of technical writers, and then to go back to being a teacher at the university, I have a special view of what technical/professional writing students need to know and how we can best teach those skills in our programs. Likewise, I have an appreciation for technical/professional writing programs and the need for these programs to be continually assessing their effectiveness in preparing students to be the most valuable new employees they can be.

Surveys from Hiring Managers and Recruiters

To learn what hiring managers and recruiters were looking for when hiring entry-level technical writers, I conducted a survey with five professionals who regularly hire technical writers. I solicited them via email, and they completed and returned the surveys through email. Items on the survey included demographic information about which industries and in which cities and states these participants hired technical writers, and the survey began with an open-ended question, "What are the top 3-5 skills you seek in any candidate?" Respondents were told the skills could be technical skills, software skills, or soft skills. Other questions asked what kind of items candidates should include in their portfolios, whether it mattered if candidates majored in a particular discipline in college, and which soft skills were the most important. They were also asked if there was something in a job application that made them reject a candidate. The entire survey can be found in Appendix A.

Job Postings and Job Boards

In addition to the surveys, I wanted to learn what skills and experiences were required for entry-level technical writing positions. I collected job ads from three different job boards, Indeed.com, CareerBuilder.com, and DICE.com, from August 31, 2015 to October 28, 2015. I used these particular job boards because they

were ones with which I was most familiar; however, the reviews and focus of the jobs posted on these sites support their value for entry-level technical writers.

In his article, Lanier (2009) questioned the accuracy of job ads and said they may be more of a wish list that managers had rather than true "requirements"; however, this was not the case in my experience as a recruiter. I worked as a recruiter at a small start-up computer software company that was purchased by one of the world's largest consulting firms, where I also did recruiting, and even if I had to use the company's job descriptions to create job postings, I still made time to have a meeting with the hiring manager to ensure the skills the manager needed were stated in the job posting. Many times managers wanted too many requirements as well as "preferred" requirements listed in the job ad, but the goal was to include only four to eight "must haves" as requirements. Because I vetted the job requirements with the hiring manager, the job postings I submitted were authentic and not just a wish list. I understand that not all recruiters at all companies are able to implement this process when posting a job. Some recruiters may not have access to the hiring manager and must use only the job description in the company's database, but the posting would still likely be based on documentation created by the company and not just a list the manager creates.

One limitation in Lanier's study (2009) was that he used only Monster.com as his job posting source because "most employment posting search engines perform the same functions" (p. 53). All job boards are not the same, however, and recruiters have many options when choosing where to post job openings for the company. When I was recruiting, I most often used CareerBuilder.com, Indeed.com, and DICE.com. I stopped using Monster.com in about 2005 because it got the lowest return on investment for my recruiting efforts.

According to the article "Undercover Recruiter" (n.d.), which informs job seekers which job boards are most useful to them specifically, the authors note that CareerBuilder.com is the job board that has more candidates that have college degrees (para 3). Another article states that CareerBuilder is more focused than Monster.com (Dada, 2013, para 4).

In a comparison between Monster.com and InDeed.com, one author claimed that Indeed is simpler to use than Monster.com (Montana, 2015, para 3).

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At the time I was recruiting, Indeed.com, which was started in 2004, was new and not filled with a large number of inactive candidates, so more active candidates were applying for positions (Bergen, 2012).

In addition to technical writing positions, I posted computer programmer and database programmer positions on DICE.com. This job board is advertised as a good option when filling positions for technical writers because this job board is particularly geared toward more technical positions, "like . . . tech writers" ("Undercover Recruiter," n.d., para 7).

It was always important for me to choose the best job board for the position being recruited in order to meet budgets and quotas for numbers of interviews and hires. Based on the focus and population of users of the three job boards to which I posted jobs when I was recruiting, it is Career Builder, Indeed, and DICE that are most relevant for a study investigating job ads for newly graduated technical writing students looking for positions where they will use the degree they just received.

Because I was expanding Lanier's (2009) article to include other job boards besides just Monster.com, and because I wanted the data to be as equal as possible for the purpose of comparisons, I collected and analyzed data using the same categories and subcategories he did. The categories and subcategories are named in the data in the Findings-Job Posting section in Figures 3 through 7 below. As mentioned, I also used the same query as Lanier, searching for only the term "technical writer." My goal was to conduct a fair and accurate comparison to Lanier's findings and to learn if there were differences in other job board postings. I recognize that there are many titles a person working as a technical writer can hold and that describe a technical writer. In fact, Brumberger and Lauer (2015) conducted a study looking at more titles, which also involved a more "extensive range of competencies, products, technologies, and traits" (para 17); however, because the jobs represented by these titles would likely go beyond the skills of a new graduate looking for an entry-level position, I did not include other titles in my searches. For this study, I wanted to investigate job boards that would be a better representation and more useful to new college graduates, in order to learn whether the job requirements were similar across job boards, and whether they correlated well to the academic technical/professional program requirements.

Findings – Surveys from Hiring Managers and Recruiters

The responses to surveys came from five professionals who hire technical writers. Respondents #1 and #2 were corporate recruiters at one of the world's largest consulting firms, and they recruit for different industries across the company. Respondent #1 described her recruiting assignments in the following way: "I have hired tech writers for Network and Software-based positions for both End-user documentation/training and technical systems documentation."

Both Respondents #3 and #5 work on a documentation team for a software company and have assisted with interviewing and hiring technical writers. Respondent #4 is the manager of a team of technical writers and has interviewed and hired technical writers. In addition to conducting or assisting with conducting interviews during the hiring process, Respondents #3, #4, and #5 have also been involved in specifying requirements for technical writers and helping with wording for the job ad.

After collecting basic demographic information about which industries and in what cities and states these participants hired technical writers, I asked the open-ended question, "What are the top 3-5 skills you seek in any candidate?" (Respondents were told the skills could be technical skills, software skills, or soft skills.) All answers given by the respondents are recorded here.

Respondent #1 (Recruiter)
1. Technical acumen specific to the type of project, leadership/project management (ability to drive a project forward, communication with technical team, accountability to leadership)
2. Attention to detail
3. General writing skills

Respondent #2 (Recruiter)
1. Previous technical writing experience, backed up by portfolio
2. Bachelor's degree in applicable major (technical/professional writing or English)
3. Good written and verbal communication skills

Respondent #3 (Employee on team who helps hire)
1. Technical writing background
2. Editing
3. Experience with creating online content
4. Basic HTML

Respondent #4 (Manager of team)
1. Demonstrable writing skills
2. A passion to help others succeed
3. Strong interviewing skills
4. Ability to work well in both group and independent settings
5. Strong interpersonal/communication skills

Respondent #5 (Employee on team who helps hire)
1. Exceptional writing skills
2. Technical knowledge
3. Knowledge of programming languages
4. Familiarity with HTML
5. Soft skills – The candidate needs to be a team player who can adapt to various personalities and situations. I look for someone who will fit well with the company and the Technical Communications team.
6. Organization, self-motivation, and problem-solving skills are also desired.

When asked if they would interview an applicant who had all the skills required for a position *except* the software skills called for, only one (Respondent #3, an employee who helps with hiring) said she would not conduct the interview. All other respondents would give the applicant a chance and would conduct an interview.

All respondents noted that soft skills are an important consideration when interviewing candidates. The following soft skills mentioned specifically as the most important were
- Motivation to help others
- Strong interviewing skills
- Independence
- Strong interpersonal/communication skills
- Adaptability
- Problem-solving skills
- Teamwork

Additionally, all the respondents said that if a college degree were a requirement for the position, the major area of study did matter, and it should be English or Technical/professional communication. One respondent also mentioned that some technical coursework would be beneficial but did not specify what that should include.

Four respondents said that having a master's degree would not put a candidate ahead of others applying for the same job. Respondent #4, a Hiring Manager,

said that when he vetted candidates, the master's degree could put a candidate above others, but only in the sense that it served as evidence that the candidate is "willing to spend two more years getting further educated, [and] … is passionate about [his/her] craft and is motivated to do the job well" (Respondent #4, survey data).

All respondents stated they would require a portfolio and would be looking for the following artifacts and evidence:
- Writing for a variety of audiences, writing that shows being able to adapt to different project needs (e.g., instructional piece, a design piece [like a brochure], a research essay, and something created for the web)
- Items that showed a consistent writing style
- Samples of editing
- Samples of work that was created using different applications (e.g., Illustrator, Dreamweaver, Visio)

The similarities in the answers given by hiring managers and recruiters are noteworthy. In addition to the findings of the survey, I investigated requirements included in entry-level job ads in three different job boards.

Job Ad Requirements

Lanier (2009) conducted a study using 327 job ads for technical writers and used only the query "technical writer" on the job board with a goal to make the study "more significant" to the field of technical communication (p. 53). In a more recent article, Brumberger and Lauer (2015) state that when they looked at 1000 job ads on Monster.com, they used different queries for their study because "practitioners and academics take the position that technical writers are not—and have not been for some time—just writers" (para 3). While this is true, the five different categories of jobs identified by Brumberger and Lauer (2015), "technical writer/editor, content developer/manager, social media writer, grant/proposal writer, and medical writer" (para 31), would potentially have different specialized requirements that an entry-level "technical writer" would not yet possess. Because my study was looking for requirements for a job candidate who had recently graduated from college with a degree in technical/professional writing, I queried as Lanier did, using only "technical writer." Also, because I

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wanted to be able to compare Lanier's findings with my own, I did not include jobs that required a "specialized, technical degree (such as chemistry or engineering)," which is also how Lanier coded his findings (p. 53). Lanier's study revealed nine skills or tools called for most often in the job ads. I have summarized the results of his study in Table 1 below.

Data Collection from Job Boards

Using just the query "technical writer," I collected data from job postings on the three job boards mentioned. This is a substantive difference from Lanier's (2009) study: he used a job board that many recruiters no longer use and that includes position postings that do not usually require four-year college degrees. The three job boards I investigated all focus more on positions requiring a college degree and include more positions that would list similar requirements to that of an entry-level technical writer. Next, I conducted a content analysis of each job posting, noting the experience, skills, software tools, project-management skills, and soft skills listed for each job. If specific tools were mentioned, such as specialized graphics, publishing, or online help software, these were coded and documented separately. Similar to how Lanier (2009) coded his data, I coded specific experiences as technical communication experience, subject-matter expertise, and technical knowledge and experience. If a job posting called for the Microsoft® Office Suite, I coded that in the category of General Software Knowledge.

Lanier (2009) categorized project-management skills as collaborative, interpersonal, analytical, communication, multi-tasking, and deadline-oriented skills. In their study, Brumberger and Lauer (2015) labeled these similar requirements as personality characteristics. While I included these skills in the same category as Lanier did, I changed this category slightly and coded these requirements as soft skills. I was surprised that many times, there were more requirements for soft skills included in a job ad than technical skills. Because they appeared so many times in the job postings I saw, I added two skills that were not included in Lanier's (2009) categories: namely, organizational skills, which I coded as project-management skills, and English/grammar skills, which I coded as communication skills.

I looked at sixty job ads, twenty from each of the job boards to see if there was enough of a difference between the job ads on Monster.com and the job ads found in CareerBuilder.com, Indeed.com, and DICE.com to warrant a call for more research and investigation in the different job postings. When I used the query "technical writer," other job titles that appeared in the results were Proposal writer, Report writer/Data analyst, Marketing proposal writer, Service writer, Documentation analyst, Integration technical writer, Policy & procedure writer, and Instructional designer/writer. As I have mentioned already, I did not include data from these job titles because I was looking for job requirements for just the title "technical writer." I also did not include data for jobs that were listed as

Table 1. Summary of findings about job ads from Lanier's (2009) article

Skills or Tools called for in the job ad	Percentage of Ads	Explanation of Skills or Tools sought
General software tools	64%	MS Office or mention of computer knowledge
Excellent communication skills or a firm grasp of the English language	39%	Oral and written communication skills
Technical writing experience	38%	Previous (general) technical writing experience
Subject matter experience	33%	Experience actually writing about the subject matter in the job
Specific subject matter experience	34%	Experience in the subject matter
Specialized desktop publishing	34%	Examples: FrameMaker or InDesign
Specialized genre familiarity	24%	Particular types of documents such as standard operating procedures
Markup Languages	17%	HTML, SGML and XML
Computer Languages	7%	C++, Java, and C#

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Figure 1. Industries represented

temporary positions or that were positions for a short-term contractor. It could be that requirements are different for those positions. For this limited study, I focused on full-time positions.

While it is unlikely that a recruiter would post the same job in different job boards because of costs and because each job board usually focuses on a different area and targets a different audience, to avoid replication of the same job postings, I recorded the date of my search, the job board, industry, and company name for each posting, as well as the requirements of the job ad. This helped ensure that I was not duplicating the same position posted in different job boards. If any discrepancies or duplications were discovered, they were easily detected and eliminated.

After collecting data from job ad postings on job boards, I was able to compare those findings to the data from the survey that corporate recruiters and hiring managers completed, which included answers to questions about their processes. This is valuable information to have because it is the recruiters and hiring managers who ultimately decide which candidates to interview and eventually hire. In addition to these comparisons, and to answer my research questions about whether programs prepare students well for the workforce, I also compared the job ad requirements to the curricula in technical/professional writing programs to see if the programs are teaching students what it is that industry is looking for as they hire entry-level technical writers.

Findings – Job Ads

Out of the job postings analyzed, the industries represented were varied and did not necessarily correlate to Lanier's (2009) findings. Figure 1 shows the distribution of industries represented in the job ads in this study:

In the sixty job ads I collected and analyzed, the most sought-after experiences or skills are shown in this list and in Figure 2 below.

- **Experience in technical communication**, 82% of the postings.
- **Communication**, 55% of the postings. The term "communication" was not well defined in the job ads. Sometimes the job ad listed "oral" and "written" communication. I also labeled a "good grasp of the English language" in this category.
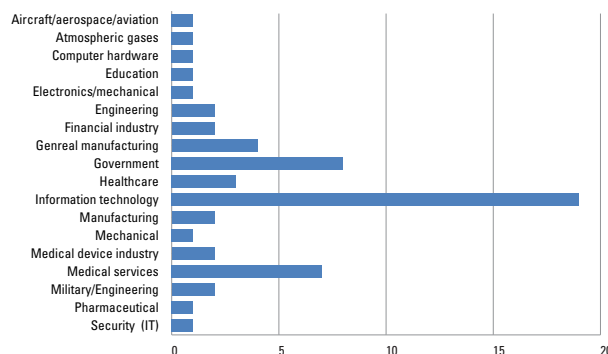
- **General Software knowledge**, 50% of postings. I placed anything that called for Microsoft Office tools or a mention of computer skills or general computer skills (without further specifics) in this category.
- **Multitasking**, 43% of the job ads.
- **Collaboration skills**, 42% of the job ads.
- **Subject matter experience**, 38% of the job ads. Subject matter experience was defined by Lanier (2009) as "experience with the subject for which, or about which the candidate will be writing" (p. 56).
- **Interpersonal skills** appeared as many times as did the call for subject matter expert (38%).
- **Technical writing skills,** 37%
- **Detail oriented**, 33% of the ads
- **Organizational skills**, 7%.

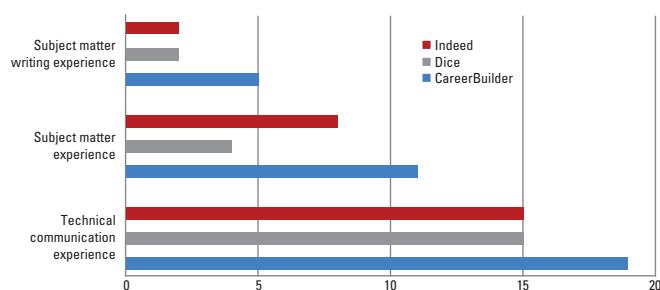These experiences and skills are displayed in Figure 2.

Figure 2. Overall Data - Ten skills required most often in job ads

I also looked at the main categories coded in the data and then separated that data by job board to see if one job board favored different skill sets over the others. The category "experience" had the subcategories of subject-matter experience, subject-matter writing experience, and
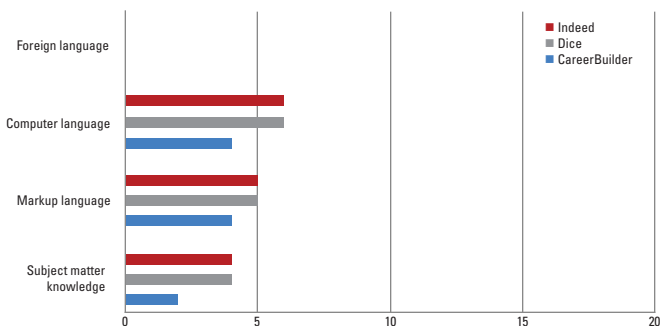
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technical- communication experience; the breakdown of the different job boards is shown in Figure 3.

Figure 3. Category - Experience

The categories were represented across the job boards almost equally except for the sub-category of subject-matter experience. It showed up fewer times in the DICE.com job ads than in the other two job board ads.
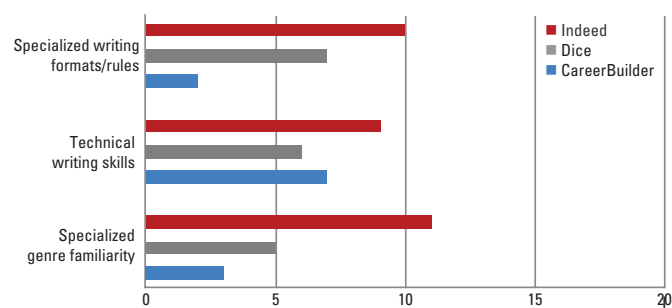
The next category was technical knowledge/ experience. Subcategories included computer language knowledge/experience, markup language knowledge/ experience, subject-matter knowledge, and foreign-language knowledge. Lanier (2009) noted that foreign language was required in five of the ads he collected. While Barbara Giammona has said that a minor in a foreign language would give a student an advantage over other candidates vying for the same position (as cited in Rainey, Turner, & Dayton, 2005), none of the job ads I analyzed listed fluency in a foreign language as a qualification or preference. Figure 4 shows the summary of the technical knowledge/experience category.

Figure 4. Category - Technical knowledge/experience

The category of technical writing-specific knowledge refers to specialized writing formats and rules, or specific knowledge about genres. Lanier (2009) defined these as "Knowledge of specified, specialized writing formats or rules, such as ISO 9,000 standards, MIL-SPEC, or Aircraft Industry Standards"
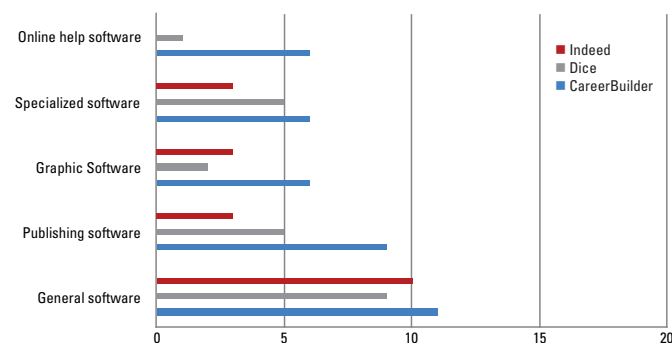
or "Familiarity or proficiency with unique or particular genres, such as SOP's, grant proposals, or software documentation" (p. 56). The summary of the technical writing-specific knowledge is shown in Figure 5.

Figure 5. Category - Technical writing-specific knowledge

The sub-categories of specialized genre familiarity and specialized writing formats/rules were listed fewer times in the CareerBuilder job ads than in the other job board ads; however, technical writing skills showed up approximately the same number of times across all job board ads.

The category of technology or tool knowledge includes the sub-categories of technical-writing skills, specialized publishing software, specialized graphics software, online help software, general software knowledge, and specialized software knowledge. CareerBuilder job ads mentioned these tools and knowledge/skills most often. The summary of the tool knowledge/skills is represented in Figure 6.
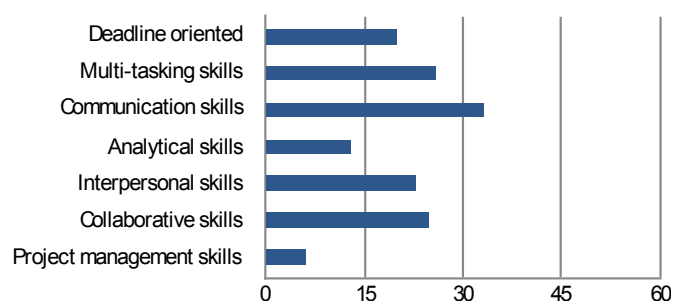

Figure 6. Category - Technology or tool knowledge

Interestingly, soft skills were called for more often than other skills. Lanier (2009) identified subcategories for these to include collaborative skills, interpersonal skills, analytical skills, communication skills, multi-tasking skills, and deadline–oriented skills. Because I
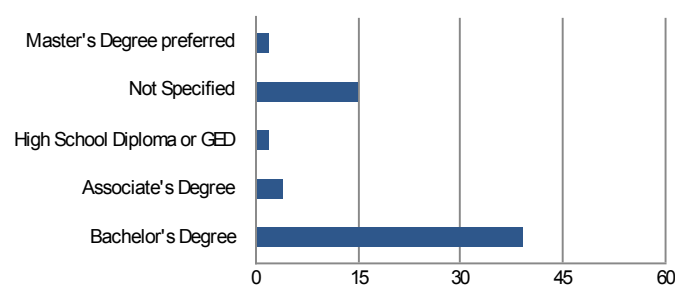
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discovered several instances of organizational skills and a call for a strong grasp of English and grammar skills, I included these terms in my coding schema. Figure 7 summarizes the soft skills category and sub-categories.

Figure 7. Category – Project-management skills

Education was specified in three quarters of the sixty job postings. A bachelor's degree was specified in 39 of the job ads. One ad indicated a bachelor's or master's degree was required, and two of the ads stated that a master's degree was preferred. Figure 8 shows the education required in the job postings.

Figure 8. Education required

It is also noteworthy that the job ads were representative of different cities and states across the entire United States. States specified in the job ads were Arizona, California, Colorado, Connecticut, Georgia, Illinois, Indiana, Iowa, Maryland, Michigan, Missouri, New Jersey, North Carolina, Ohio, Oklahoma, Rhode Island, Tennessee, Texas, Virginia, Washington, and Washington, DC.

As a summary of the skills sought in job ads, and also how students would be able to acquire those skills within their academic experience, I have provided the following table as a comparison.

It is important to realize that for each of the requirements in the job ad, there is a class or experience in the technical/professional writing program that

Table 2. Comparison - Job ad skills versus skills taught in TPW programs

Skills sought in job ads	Courses and experiences that would include this skill
Experience in technical communication	Internship, field experience, completing assignments in several classes
Communication skills (good grasp of the English language)	Basic, Introductory, Capstone, Internship, Web
General software knowledge	Web, Document design, Internship
Multitasking	Capstone, Internship
Collaboration skills	Internship, Many classes that would include group projects/assignments
Subject matter experience	Genre, Internship, Web, Document design
Interpersonal skills	Internship, Any class that requires group work
Technical writing skills	Basic, Introductory, Genre, Editing, Document design
Organizational skills	Basic, Introductory
Detail oriented	Editing

provides an opportunity for students to learn and/or have experience with the requirements.

Program Requirements Across the United States

If the goal of an academic program is to produce students who have a breadth and depth of knowledge in their field of study, with the goal of transferring as seamlessly as possible into the world of work, it would make sense that the world of work would have a voice in what the students were taught. This relationship between industry and academia is crucial yet difficult to establish and nurture. And while some in academia may want input from industry, there must be a balance between getting input from industry and still having the freedom to be creative and develop a program that is exactly what students need, as decided by the program director. Harner and Rich (2005) said it well: There is not a typical curriculum for a technical/professional writing program (p. 209). Johnson-Eilola (1996) notes

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that the technical communication program is often "called upon to fulfill wish-lists of skills" for industry, a role that those in academia may find too restrictive and demanding (p. 247). One way we might be able to receive input from industry while maintaining autonomy as a program would be to invite people from industry to serve on advisory boards.

Some academic programs embrace input from an advisory board, which can be helpful and can infuse energy into the program, but others steer clear of them. Meeder and Pawlowski (2012) tell about a business advisory board that provided a transformation for their program; they felt the board added a benefit in helping program directors know better what students needed in order to be well equipped to go into the workplace. Other program directors do not want to be supervised by non-academic or extracurricular entities.

While there is no *typical* technical/professional writing program curriculum, research has been conducted on many programs across the United States. Program directors can learn about already-established programs to help them make informed curriculum decisions. The first study was conducted in 2005 by Harner and Rich and included 80 programs. A set of core courses was identified, and the authors discussed the locations of the programs, requirements for internships, and the development and inclusion of portfolios. Later, this research was updated by Meloncon and Henschel (2013), who studied 65 programs across the U.S. and provided an update, comparison, and summary of program information that Harner and Rich had compiled previously. Meloncon and Henschel (2013) contend that their research "provides the field its first opportunity to compare curricula over time and to highlight trends and changes" (p. 55). Both of these studies employed a research methodology in which the researchers accessed the universities' web sites and course catalogs and collected information about programs and courses there. Harner and Rich (2005) identify an obvious weakness in this methodology: that is, "the accuracy of the information retrieved is in direct proportion to the accuracy of the information on the Web sites" (p. 210).

In the 65 programs in Meloncon and Henschel's (2013) study of technical/professional writing undergraduate degree programs across the U.S., they found eight main courses that were required by 40% of the programs; they labeled these as the core

requirements taught in the technical/professional writing discipline. Beyond those eight courses, the study found multiple elective options. In addition, the study found 58% of these programs also require a minor, subject-matter focus, or professional experience. Most of the minors required 15-18 additional credit hours beyond the major requirements (p. 54).

Meloncon and Henschel (2013) reported the eight main courses required were Basic, Capstone, Editing, Internship, Introduction, Web, Document design, and Genre (p. 51). To better understand what universities include in the curriculum of each of these courses, Meloncon and Henschel provided the skills from each university's catalog as a summary of the curricula taught in the courses. These skills are listed in Table 3 below.

Table 3. Summary of Meloncon & Henschel (2013) Program Requirements

Course	Skills
Basic	Audience analysis, Composing technical discourse
Capstone	Cumulative experience, Portfolios
Editing	Levels of editing, Process of editing through publication
Internship	Field experience
Introduction	History, Theories, and definitions in TPW, Page design, Research tools, Genres & conventions
Web	Tools and technologies of content production, New and multi-media, Page layout, Design principles
Document design	Write and design documents using electronic publishing technologies
Genre	Proposals/grants, Instructions, Reports, Public Relations, Marketing, Government or industrial, Medical and/or environmental

These eight courses provide instruction in skills necessary for the scope of academic offerings, beginning with foundational courses and moving to the more expert-level skills and experiences for the technical/professional writing student.

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It should be noted that while a set of core skills has been identified, vast differences in programs remain. One example is the Internship course. Meloncon and Henschel (2013) noted the difficulty in "manag[ing] and sustain[ing]" (p. 60) internships. Also, faculty advisors and program directors must maintain connections with established employers who provide their students internship opportunities. In addition to these responsibilities, faculty advisors and program directors also must assess student performance within the internship experience. Another issue with the internship requirement is described by Savage and Seible (2010). In their study, they investigated 63 TPW programs: of the programs that required an internship, the required number of hours in the workplace varied significantly. Some required as few as 1–40 hours, while others required as many as 1001–1040 hours. The majority of the internships (54%) required 81-160 workplace hours to fulfill the requirement of the internship (p. 63). The kind of work required varied as well. Savage and Seible (2010) suggested that an intern who works for 100 hours completing primarily copyediting work should not earn the same credit hours as a student who is working on complex documents that require more advanced competencies, such as design and interpersonal skills (p. 61). This would be an area for further study. Directors of internships should scrutinize the tasks assigned to an intern, and potential employers should be aware that not all required internships are the same.

Variation in TPW programs is also evident on the position of software and hardware in the curriculum. Program directors and faculty still cannot agree on whether to teach specific tools and technologies. Some argue that students must learn specific tools; others recommend that it is more important that students have a familiarity with several tools but are skilled at learning new tools. Rainey et al. (2005) echo the attitude of many of the hiring managers with whom I used to work: "The ability to adapt to new situations and to learn new software quickly is far more important than knowledge of specific software packages" (p. 333). In their study, one respondent noted, "Basically, if I can find a superb writer who understands technology and works well with others, I am willing to provide training for all the other skills I need the person to have" (p. 333). This same sentiment was expressed by respondents in my study when they said they would

interview candidates lacking technical experience and give them a chance.

Rainey et al. (2005) reported that in addition to the main requirements, most programs encourage students to focus on an area of technology or science for the required electives or for a minor. Even when a set of classes can be described as "core," there are still many differences in program requirements. Having a good understanding of what employers want in a recently-graduated employee can help inform the required curricula within these programs.

Discussion

After looking at
- the requirements listed by recruiters and hiring managers who actually hire technical writers,
- the requirements posted in entry-level technical writing job ads, and
- the Meloncon and Henschel (2013) report of requirements within the curricula of TPW programs across the United States,

I conclude that many TPW programs in the United States are addressing the needs that employers have by offering courses that meet those needs. While there are differences in the details, it appears the major objectives in technical/professional writing programs seem to be more consistent than not. Foundational courses offer students a broad base of the different genres technical writers use, including technical reports, proposals, and instructions. Document design and web design courses often include usability and user-experience tasks as part of the curriculum. It could be argued as well that because of the access most college students have to technology, the majority of college students in the U.S. have more than just a general knowledge of software options.

Whether programs should teach specific tools or teach students how to learn tools continues to be a debated topic; regardless, some tools are being taught as part of the curricula in most TPW programs, and faculty and program directors will have to make decisions about how to balance this most effectively for their students. As a former recruiter, I concur with Rainey et al. (2005), who advocate that students should be required to learn and to use different software tools to complete projects. If, in an interview, a student's portfolio includes a well-done, final product that was

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created after using a new application for only a few weeks (especially with little formal instruction), this is valuable. Students who can learn on their own will require fewer hours of direct training. Students who can prove they are self-motivated learners will have an advantage because managers and other employees are often too busy to train new employees, even when they are behind with projects and need new team members.

Interestingly, Rainey et al. (2005) suggest that "relevant tools should include language – and especially foreign language" (p. 323), but in my findings, no job board, manager, or recruiter mentioned the need for a potential employee to know a language other than English. This is surprising because in today's economy, many companies have offices worldwide.

Communication skills and technical writing skills will be taught in academic courses as well, and several courses will have a collaborative component to give students collaboration skills, organizational skills, and interpersonal skills. Being able to multi-task and pay attention to detail may be personality traits, but these can be improved on with practice. Subject-matter experience may be gained when students complete the required 15-18 credit hours with a minor, subject matter focus, or professional experience that is required in the 58% of the 65 programs studied by Meloncon and Henschel (2013).

It is important to remember that when hiring managers are considering a potential candidate for a new position, they and recruiters should look at the whole package the candidate brings to the table and not just the course work in the program where the specific degree was acquired. In addition to their course work, many students also hold down jobs and participate in extracurricular activities. Some of them do all of this and maintain a better-than-satisfactory grade-point average (GPA). These extra responsibilities are important to think about and can help students acquire many of the skills the employer seeks.

While this is a valuable study, it is a small-scale study with a low but expedient number of participants and job boards. Additionally, the program data collected by Harner and Rich (2005) and later updated by Meloncon and Henschel (2013) is only as good as the universities' web sites from where they accessed the data. And it is likely that not all technical/professional programs are included in the data; there may be important data missing that could add to these results.

Conclusion

Ensuring the employability of students is a goal of the university experience; therefore, TPW program directors need to stay current on technologies and methodologies used in the workplace and provide the foundation and the opportunities for students to learn these in order to be employable. In addition to teaching technologies and methodologies, instructors must keep up with what kinds of assignments most effectively teach students these necessary skills.

It is also important to understand that students cannot learn all the skills and experiences they need from a class. For example, multitasking is not likely to be the title of a course, but students have the opportunity to learn soft skills with every class meeting and class project within their course work. Considering the response about how important soft skills are to recruiters and hiring managers, we need to emphasize soft skills more in the curriculum. Additionally, many of the TPW programs included in this study require an internship, which can offer valuable experiences for students; however, more study needs to be done so we can learn about internship requirements, how we can align these better from program to program, and how we can encourage employers to accept internship hours as legitimate workplace experience. Employers also need to understand that there may be vast differences in internship requirements from one program to another. Still, it is satisfying to realize most programs are offering technical/professional writing students with the skills and experiences they need to be considered as valuable entry-level employees in the work force.

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About the Author

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Appendix A

Survey Sent to Recruiters and Hiring Managers

Thank you for answering these questions. They should take you only about five to ten minutes. Your participation is not required, and there is no risk for you to participate. You may stop answering the questions any time (or leave any blank that you don't wish to answer).

- For what industry (or industries) do you recruit/hire technical writers?
- What city/state would the technical writer work in? (Or has worked in, if you hired one)

Skills

- What are the top 3-5 skills you seek in any candidate? (This could be technical skills, software skills, or soft skills.)
- Do you typically look for software skills in an applicant?
- Would you be interested in interviewing someone who had all the skills *except* software skill/experience you might require?

Soft Skills

- How would you define soft skills?
- Do you look for soft skills in a candidate?
- If yes, which one(s) particularly?

College Degrees

- If the job requires a Bachelor's Degree – does it have to be with a specific major or minor?
  - If yes, what is that major?
- Does is matter if a candidate has a Master's Degree?
  - If yes, how does it differ?
- Would an applicant with a Master's Degree have an advantage over one that has only a Bachelor's Degree?

- Do you value Master's Degrees more than Bachelor's Degrees?
- What differences do you observe in the workplace in a worker with a Master's Degree as opposed to a worker with a Bachelor's Degree?

Portfolios

- Do you require a portfolio of applicants. Yes/No.
  - If no why not?
  - If yes, does HR look at it? Or the hiring manager? Or maybe both?
  - If you collect a portfolio, do you prefer hard copy or online?
  - What are 3-5 items you expect to see in a portfolio of a TW applicant?

Social Media

- When considering a candidate for a TC job, do you look at his/her social media sites?
- Do you believe what you see in social media gives you an idea of what kind of employee someone will be?
  - If yes, can you give a little more explanation?

For the Manager

- Do you have a Bachelor's degree?
- If yes, what was your major (and minor)?
- What degrees do most of your workers have and what majors?

Last Questions

- What is something that makes you reject a candidate?
- Is there anything you would like to add about hiring technical writers?

The Technical Communicator as Participant, Facilitator, and Designer in Public Engagement Projects

By Kristen R. Moore, Texas Tech University

Abstract

Purpose: This article reports on a study of professional public engagement specialists and their practices within one case of transportation planning. This study moves beyond the Environmental Impact Statement to reveal the practices used in making public engagement an inclusive and dialogic (rather than exclusive and one-way) process.

Methods: This qualitative study was conducted over two years and included formal and informal interviews, observations of workplace and public projects, and the collection of project documents.

Results: My findings suggest that technical communicators who hope to implement public engagement function across three different roles within the dialogic public engagement process: participant, facilitator, and designer.

Conclusions: The roles of participant, facilitator, and designer expand the potential of technical communicators and require an attention to understudied skills in the field of technical communication, including listening and interrogating boundaries.

Keywords: Public Engagement, Environmental Impact Statements. Intercultural Communication, Ethnography

Practitioner Takeaways:

- In developing public engagement plans, a focus on dialogue can improve the effectiveness and representativeness of the project.
- Technical communicators must commit to developing new skills in listening and intercultural communication if they are to effectively develop and implement public engagement as part of Environmental Impact Statements (EIS).

The Technical Communicator as Participant

Introduction

Environmental Impact Statements (EIS) are reports mandated by law if major changes are to be made to a community or geographic location. EISs have been studied in Technical Communication with varying amounts of critique and support. While the limits of the EIS as a deliberative document are well-studied (Killingsworth & Palmer, 1992; Simmons, 2007; Waddell, 1996), EISs nonetheless report on complex, often technical situations and problems, making them a central genre for technical communication. As reports on decision-making processes, however, EISs provide only a limited perspective since they are often written by subject matter experts to meet governmental mandates. Much more can be understood from Environmental Impact *Studies* (EIStudies), or the research, discussions, and processes that precede the EIS. In studying the research process related to the EIS, technical communicators can more accurately understand the details of the project and, importantly, begin to see the potential to work towards activist ends that scholars like Simmons (2007), Waddell (1996), and Dayton (2002) seek.

This article draws on field research that investigated one Environmental Impact Study (EIStudy)—not the Statement—in order to suggest strategies technical communicators can use to develop engagement plans that are inclusive of diverse stakeholders and that rely on a dialogic rather than one-way approach to communication. These findings provide details, practices, and steps about public engagement that get obscured or overlooked in the EIS. Specifically, this research exposes the potential roles that technical communicators might play in the development of public engagement plans, which are a required part of the EIStudy. More traditional, text-based studies neglect the important work technical communicators can (and do) undertake as facilitators, participants, and designers of public engagement plans.

In the case I report, the Springdale Corridor Study[1] (SCS), the public engagement plan was developed and implemented by VCC Communications, a consulting firm located in a Midwestern city. For two years, I studied the consultants as they worked in communities and in their offices, planning engagement projects, interacting with citizens, designing complex documents, and implementing long-term plans to involve citizens in public decisions. The six consultants and two project managers worked on projects with non-government organizations (NGOs), non-profit organizations, engineering firms, corporations, and local and city governments. In all cases, when they were hired to work on public engagement, they adhered to their shared vision for inclusive, representative and dialogic public engagement. In both my interviews and meetings with the VCC founders and consultants, the notion of public engagement as dialogic was prominent, as they described their interest in using policy-based projects to improve their local communities.

I use this case as a blueprint for understanding the work professional and technical communicators (PTC) do in public engagement planning, specifically as it can demonstrate the role activism might play in daily practices of PTC. This article suggests that technical communicators invested in social justice, public planning projects, and/or the efficacy of Environmental Impact Statements can augment their own public involvement by incorporating dialogic and inclusive practices. I begin by defining the terms public engagement and considering existing scholarship on the term. Then, I articulate the importance of dialogue, a central tenet of Patricia Hill Collins' (2007) articulation of Black Feminist Theory, in the cases I studied. These two sections serve as a foundation for my central argument: in public engagement projects, technical communicators function as participants, facilitators, and designers of dialogue. These three roles require particular skills sets, some of which are clearly articulated by technical communication literature, some of which are not.

Defining public engagement

Within public planning, public engagement refers specifically to the process through which a group of citizens or community members become involved in a public project. Although the NEPA of 1969 does require public engagement, the specifics of the requirement are limited (78 40 C.F.R. § 1500.2(d).). In a report to Congress on the implementation of the NEPA, Luther (2005) describes the public engagement requirement in this way: "Specifically, agencies are required to provide public notice of NEPA-related

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[1]   All city, project, organization, and personal names in this article are pseudonyms, per the author's IRB protocol. This research was approved by the author's IRB board in 2009.

hearings, public meetings, and the availability of environmental documents so as to inform public stakeholders that may be interested in or affected by a proposed action" (p. 26). For public planners, carrying out this directive is labeled public engagement, involvement, or participation.

The practitioners I studied specifically define public engagement as "a tool for bringing people together to discuss and resolve public policy issues" (VCC Communications, n.p.); this definition shifts the direction of public engagement as it has been discussed within technical communication. Much (though not all) work surrounding engagement has referenced pedagogical approaches to service-learning and community-based work. In general, this research can be characterized either as efforts to bridge the university and its local community or as responses to an imperative for training students to be civically involved or aware (Blythe, Grabill, & Riley, 2008; Bowdon 2004; Bowdon & Scott, 2003; Dubinsky 2001; Simmons 2010). Technical communication scholars often call this public (or community or civic) engagement (or participation or involvement), but I diverge from these definitions not because they are unimportant, but because practitioners' frames and understandings of participation, involvement, and/ or engagement exist outside of the university and its students. Instead, I turn to scholarly and practitioner work in public planning that has conceptualized public participation akin to the Springdale project I discuss in this article.

Both scholars and practitioners have conceptualized public participation through levels or degrees of citizen participation. The earliest example of this is Arnstein's (1969) Ladder of Participation, which includes eight stages of participation. Arnstein groups her stages into three categories: nonparticipation (which includes therapy and manipulation), tokenism (including placation, informing, and consultation), and finally citizen power (partnership, delegated power, and citizen control). Arnstein's foundational work suggests, in line with scholars in technical communication, that power must shift if citizens are going to be actively involved in decisions and planning.

Other models reflect a similar spectrum of engagement, albeit with fewer stages or levels. Lukensmeyer and Torres (2006) suggest public participation extends across four levels: information,

consultation, engagement, and collaboration. These four levels graduate in depth of public participation, and the final level "collaboration" represents the ideal participation level because it includes "processes [that] build capacity for lasting cooperation among groups and policy implementation" (p. 17). The International Association of Public Participation (IAP2), a professional organization dedicated to public participation, adds a fifth level of participation, which they term "empowerment." Empowerment suggests that citizens have power over the decision at hand—that what citizens decide is what will happen.

In practice, these levels get used as conceptual frames for deciding how to proceed in a public engagement plan (see Figure 1). However, for technical communicators, more details are needed in order to effectively implement a public engagement plan.

This article refocuses public engagement as a technical communication practice and explicates how the expert public engagement consultants at VCC implemented their process. I follow previous scholars in discussing steps and practices for involving citizens in public decision-making. In both "Wicked Environmental Problems" (Blythe, Grabill, & Riley, 2008) and "Embracing New Policies" (Williams & James, 2008), for example, the authors report on the role technical communicators can play in implementing public engagement plans. Blythe, Grabill, and Riley report on their role working with community members to help them make and seek knowledge about a dredging project in Harbor, MI. Williams and James report on their role in reaching diverse communities through a public involvement program for the City of Houston's Bureau of Air Quality Control. These articles demonstrate Simmons' (2007) claim that technical communicators can and should be involved in developing public participation plans. Like these scholars, I see public engagement as a prime area for technical communicators to work and research because it involves designing documents and processes that help citizens understand the complexities of transportation and urban planning projects. Additionally, as these scholars demonstrate, technical communicators can become citizen advocates, seeking to create more equitable and just decisions about policies and community development.

Unlike these models for studying public policy, however, my research focused on practitioners who

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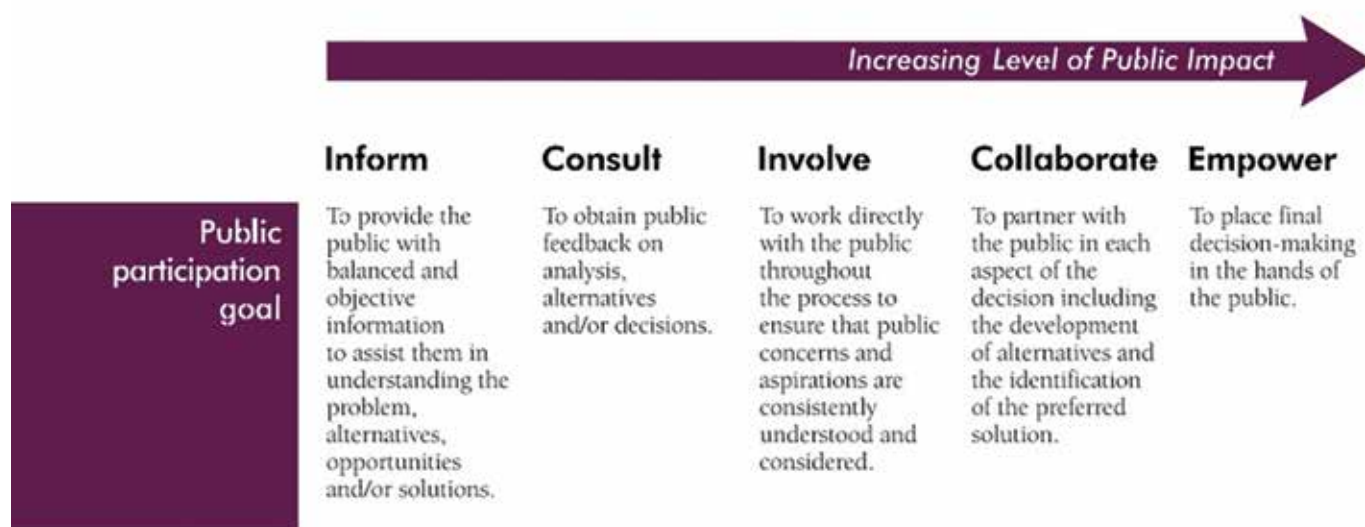**Figure 1 IAP2 Spectrum http://ncdd.org/rc/wp-content/uploads/IAP2-spectrum.png**

enact public engagement projects, an approach that can offer other professional communicators in public projects an alternative view of public engagement. Rather than work with community members or as part of a consultant team, I carefully studied the work of professionals so as to report their strategies back to technical communicators who seek to enter transportation and urban planning vis-à-vis public engagement. Having purposefully divorced the study from university-driven principles or definitions of community or public engagement, I provide a frame for understanding public advocacy within the context of a consulting business.

VCC Communications and the Springdale case

In Springdale, IL, the stakes were high: the Federal Railroad Association's plans to develop high-speed rail between two metro areas would leave Springdale (the hub between the two metro areas) to absorb the projected 100% increase in the freight and passenger rail by 2020. The city knew that its three current corridors would be inadequate for this increased rail

and that reconstruction of one or all of the current corridors would be necessary in order to accommodate the increase. Although Springdale was historically a rail town, its citizens were troubled by the increase in noise, the disruption of traffic patterns, and the potential reification of the racial tensions that had plagued the city for over a century. The city secured an engineering firm (Hendricks Engineering) to complete the EIStudy, and Hendricks, in turn, hired VCC Communications to develop and implement a public engagement plan.

As part of the SCS team, the consultants developed a comprehensive, iterative plan for involving citizens in the EIStudy. Because of the history of racial division in the city, most notably represented by the 10th street corridor, the consultants at VCC knew they needed an inclusive process that could reach as wide a range of citizens as possible. The consultants' objectives in the Springdale case reflected Simmons' (2007) and Paretti's (2003) desire for just and ethical processes, but across their public engagement projects, the consultants confronted the problem that Koch (2013) addresses: institutional processes dictate how flexibly citizens can

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be integrated into the decision-making structure. In a staff meeting in February of 2010, the VCC consultants mapped their own projects (both past and present) across IAP2's spectrum of participation (see Figure 1), an activity that helped measure their daily work alongside the professional organization's recommended framework. Given the bureaucratic complexity of the consultants' public participation projects—not to mention the financial and time constraints—the project mapping revealed that few of their projects realistically fit into the "empowerment" category because rarely do citizens have control over the final decision.

However, as my study reveals, professional communicators can inch their projects toward more just and equitable decision-making through the design of the engagement plan. In the SCS case and in other cases, the consultants use dialogic and inclusive *practices* alongside an iterative approach to designing the engagement plans in order to resist the defeatist attitude that might come with limited ability to move the project towards empowerment. In the Springdale Corridor Project, the consultants leaned on dialogues with stakeholders to inform their public engagement plans. This recursive process of continuous refinement existed in tension with the institutional timelines and the financial constraints of the project, so the consultants balanced the maintenance of projected outcomes and schedules alongside the need to accommodate citizen concerns. Their public engagement was founded on the notion that dialogue--both with citizens and among citizens--helps make apparent public concerns that might otherwise be left unseen.

The importance of dialogue has seldom been discussed as an approach to inclusivity in either technical communication or in public planning, and this is perhaps because few practitioners follow what I see as a Black Feminist approach to building their projects. Black Feminist theories[2] (while not

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[2]   In introducing Black Feminist theory as a frame for dialogic public engagement, I risk oversimplifying the theory for audiences who have little exposure to it and, further, I risk suggesting that we can borrow or co-opt theoretical positions from marginalized groups without careful and thorough positioning. I more fully discuss the foundations of Black Feminist theory and my own positioning in a forthcoming chapter, but in this piece, rather than Whitewash the article, I honor the theoretical underpinnings of the argument I'm building by 1) openly connecting daily practices of Black women with the theories that have been developed from them, 2) integrating these theories without drawing away from the practical takeaways from the study to center on race, and 3) offering a portrait of Black women as technical communicators that might take baby steps towards integrating alternative theories into the field.

monolithic) build directly from the daily practices of Black women as they often chip away at issues of social justice through a wide array of daily work in communities, families, and workplaces. The consultants I studied aimed to bring about positive change to their communities and the organizations they worked with through their daily work, and in this way they were admittedly activist in their approach to professional communication. I identify their work as a portrait of Black Feminist activism not simply because the consultants themselves are Black women but also because their commitment to dialogue and inclusivity reflects Patricia Hill Collins' (2009) articulation of one version of Black Feminism. In *Black Feminist Thought,* she explains that Black feminists build knowledge from their lived experiences (p. 275-279) and from dialogue (p. 279-284) and they use this knowledge as part of a social justice project that is dedicated to institutional transformation. I saw these foundational tenets of Black feminism enacted at VCC and in the Springdale case. As I have argued elsewhere (Moore, Forthcoming 2018), this approach to knowledge-making particularly ameliorates discussions of public participation, which, in its most just and ethical forms, empowers citizens and invites their lived experiences to affect the project at hand. As such, the theory provides a foundation for prioritizing dialogue in public engagement and for assuming that public engagement rooted in dialogue has the potential for institutional transformation.

Study Design and Data Collection

The Springdale Corridor Study (SCS) was one of three cases of public engagement I studied as part of a workplace ethnography at VCC Communications. My data collection began in the fall of 2009 and extended through early 2012; my methods included daily observations in the office and field, semi-structured interviews with all consultants and project managers, and document collection and analysis. My research on the SCS, specifically, began in February of 2010 before the Notice of Intent—a document that declares the governing body's intent to conduct an EIS—was released. Within the Springdale community, I attended all of the public open houses, one series of advisory group meetings and a handful of other community events. Within the VCC offices, I attended two formal planning meetings for the project: one with the

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entire staff of VCC Communications and one with a subset of the staff who were leading the project. I also observed and participated in informal discussions of and planning for the Springdale Project during my three months of daily office observations. During these observations, I took field notes, engaged in informal interviews with team members, and traveled to various out-of-office events, like recording studio sessions, meetings with clients, and luncheons with citizens. Additionally, I collected all documents produced for the Springdale Corridor Project [including earned media] and the results from citizen evaluations and feedback from a number of public events.

Throughout the project, I drew on Black Feminism and critical methodologies to guide my research; as a white woman working among Black women, I took care to mind what Jackie Jones Royster (1996) calls "home training." She advises that "when you visit other people's 'home places,'…you simply cannot go tramping around the house like you own the place, no matter how smart you are, or how much imagination you can muster…" (p. 32). This might seem obvious for qualitative researchers, but in my research, this meant not just being polite—it meant gladly adopting the "resident white girl" position, sharing personal stories during storytelling times at meetings, and adopting the firm's communal attitude, often rolling up my sleeves

to pitch in with work. I sought to support the work of the consultants in whatever ways I could, from taking pictures, to editing documents, to helping consultants learn new technologies. I did so not only because I believe we are ethically bound to enact reciprocity with our participants, but more specifically because culturally that is how VCC did things: everyone together, all hands on deck. I introduce this positioning in part because where the Springdale project certainly introduces issues of voicelessness, justice, and equity, my choice to investigate *these* consultants was motivated by the fact that Black women in our field have been all but ignored and erased as legitimate practitioners. In order to investigate successfully without co-opting or appropriating their work, I adopted their empathetic and activist, communal and dialogic visions of the world in order to reflect "notions of honor, respect, and good manners across boundaries" with a particular note that the "communities in our nation [that] need to be taken seriously" include Black women technical communicators (Royster, 1996, p. 33).

Dialogic and Inclusive Public Engagement

In the SCS, the consultants used a number of public engagement practices and models that they describe as dialogic (see Table 1 for an overview). When they

Table 1 Dialogic Events, Activities and Participants

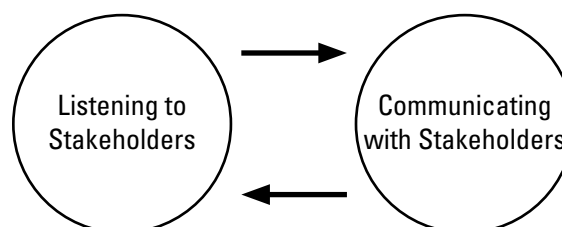| Dialogic Practices	Dialogic Activity	Who Dialogued
Stakeholder interviews	VCC consultants interviewed stakeholders	Consultants [listened] and Stakeholders [spoke]
Informative Communications	Consultants circulated informative brochures, web material and posted materials on kiosks	Consultants [spoke] and Stakeholders [listened]
Community Presentations	VCC consultants attended community group meetings, presented information, and informed citizens about the project;	Consultants [spoke] and Stakeholders [listened]; Stakeholders [spoke] and Stakeholders and Consultants [listened]
Community Advisory Group Meetings	Stakeholder groups met to learn about and discuss the project.	Consultants [spoke] and Stakeholders [listened]; Stakeholders [spoke] and Stakeholders and Consultants [listened]
Public Open Houses	VCC designed a series of interactive activities; Stakeholders moved through stations that informed them about the projects; Stakeholders asked SMEs about particular elements of the project; Stakeholders posted and read one another's comments about the project.	Stakeholders [spoke] and Stakeholders [listened]; SMEs[spoke] and Stakeholders [listened]; Stakeholders [spoke] and SMEs [listened].

name their work dialogic, they mean that their practices seek to create two-way communication where all stakeholders of the project (including themselves) both speak *and* listen. This approach, then, diverges from the one-way communication typically used to engage the public. Often, requirements for public involvement are satisfied by public meetings, in which citizens are invited to listen to engineers or public officials explain what will happen with their cities or communities. As Aleia, one of the consultants working on the SCS said, "We don't do public meetings. That's not engagement." For the VCC consultants, engagement implies a dialogic approach—not the broadcasting of news featured in public meetings.

Brulle (2010) troubles one-way communication in his discussion of messaging campaigns that claim to further citizen interest and involvement. And yet, as Brulle notes of the campaigns he studied, "In place of sustained dialog and interaction between citizens and their leadership, we are offered a one-way communication in which individual citizens are treated as objects of manipulation and control" (p. 89). VCC Communications actively avoids this type of "public relations" or "spin messaging," as Brulle names it. In fact, the consultants went to great lengths during my ethnographic research to articulate that their work is interested in including more people in decisions--not in managing citizens through mailings and public meetings. In their minds, this kind of public relations runs in direct conflict with their approach to engagement. Merely talking at citizens does not constitute engagement for this organization; engagement works towards dialogue. As I discuss later, technical communicators who aim to engage citizens in ethical and just decision-making projects must develop skills that include listening as well as effective speaking and writing skills.
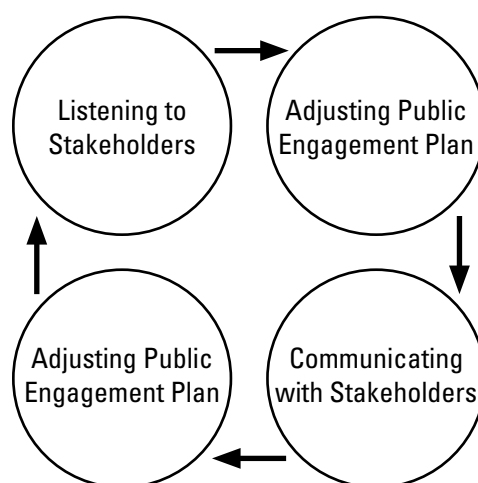
VCC as participants in dialogue

One way to describe these kinds of dialogic practices is through the role the consultants played in dialoguing with citizens and other stakeholders; they both listened to and spoke with citizens. A simple diagram of this might look like Figure 2, where there's a two-way delivery of information. But, as I'll describe, the consultants used the information they gained from stakeholders to inform their plan for public engagement—creating an iterative model of dialogue and planning that is much more complicated than the

term dialogue initially implies (see Figure 3). Their public engagement planning, then, can be characterized as both flexible and deeply invested in citizen input.

Figure 2. A simple dialogic model

Figure 3 Dialogic model with iterative steps

VCC began the SCS with a robust research and listening phase. In Springdale, this phase included interviews with a wide range of stakeholders, including community leaders, residents of various areas of Springdale, public officials, and members of the steering committee. Stakeholder interviews were held at locations of the stakeholders' choice and, with permission, they were video-recorded and transcribed. These interviews explored stakeholder concerns about the SCS and established the breadth of concerns that the public engagement process would need to address, accommodate, or expose. For example, Drew, owner of Drew Management Services and a member of a citizens' club, reported his concerns about racial divides, "One of the social issues in the city is whether or not the railroads will divide certain communities from the rest of the city. And that's a critical concern in the African American community where that has been a historical pattern." The consultants took note

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and began anticipating the kinds of struggles facing this particular project, and this initial comment helped the consulting team prepare to take additional steps to demonstrate their sensitivity to racial concerns, which historically had fallen to the wayside in public projects. In addition to structured interviews, they responded to citizen concerns. One of the consultants and several other Steering Committee members spent several hours walking along the 10th Street corridor with citizens that live nearby. They heard the noises of trains and felt the vibrations of the current rail traffic.

The consultants coupled this responsive listening and researching with additional communication that might more aptly be described as the other half of dialogue, speaking. In practice, the work began as informing citizens about the project and circulating key information about it, including the when and where of project events and involvement opportunities. VCC consultants and project managers went to lengths to widely circulate information about the project itself—particularly as the project began. Their informational engagement techniques included a website with comprehensive information about the project, information kiosks at key community locations, bimonthly newsletters to keep citizens apprised of the project, and a Springdale Corridor Study video.

A more concrete form of dialogue occurred through the community presentations that the VCC consultants delivered throughout the SCS. They committed to giving presentations about the SCS to any community group who wanted to know more about it—at the time and location of the group's choosing. More than 30 times, the VCC Communications team traveled to churches, community centers, neighborhood associations, or small group meetings to discuss the study with citizens, to answer questions, and to clarify the ways that citizens could contribute to the process. Over the course of the project, the consultants gave presentations to and made personal contact with over 1,000 citizens in the Springdale area, demonstrating their personal interest in the citizens by engaging in dialogue with individuals. Because the consultants honored personal experiences and dialogue as meaningful knowledge for the project, the public engagement process not only reached many citizens but also served as a relationship-building process among citizens and between the consultants, SMEs, and citizens.

VCC as facilitators of dialogue among peer stakeholder groups

Although VCC often participated in dialogue (either through the iterative two-way model or through face to face conversations), they also worked to facilitate dialogue among peer groups. In Springdale, I saw this facilitation primarily in the advisory groups, which VCC consultants organized in response to earlier listening in their public engagement planning (see also Moore, 2016). Based upon stakeholder interviews and their knowledge of public engagement, consultants Rose, Aleia, and Lana developed four advisory groups to the Steering Committee: the Medical Advisory Group (MAG), the Community Advisory Group (CAG), the Business Advisory Group (BAG), and the Public Official Advisory Groups (POAG). These groups represented what I call peer stakeholder groups because members of each group had relatively equal position and power in the decision-making process; I differentiate this from cross-level grouping, which might group public officials (who have more relative power in the process) with citizens (who tend to have less). In facilitating these meetings, the consultants were at times participants in dialogue, but they also facilitated dialogic opportunities among stakeholders.

The development and facilitation of the CAG signaled the kinds of cultural difference that needed to be researched and considered in both the final decision and in the development of future engagement events. It included 18 community members, including presidents of neighborhood associations, church leaders, and representatives from other community groups. During each meeting, the advisory groups received updates on the project and were prompted to discuss the updates, to consider the way the new information shaped or changed their views. When I attended one of the Community Advisory Group meetings (CAG), Rose and Leah facilitated the meeting, using a PowerPoint to share new information on the project. The advisory groups provided a chance for conversations across constituents whose primary focus would be the same. Thus, the CAG was primarily responsible for assessing the ways the project would affect communities around Springdale.

Although portions of the CAG meetings focused on questions and answers with the team, the advisory group provided an opportunity for community members to hear, dispute, and discuss differing points

of view. The first CAG meeting, particularly, featured a number of disputes wherein community members dialogued with one another; other discussions affirmed and validated the concerns of peer community members. For example, one citizen described,

> I worry too about whether or not the outcome of this study is just a foregone conclusion. Maybe it is. But, one of the things I want to do and hope we can do as a community is put some faith in the study and see what the facts tell us. I do hope that no matter what happens, that our participation as neighborhood and community groups will give us a say about what's best for our city. I am tired of the divisions about who benefits from these major decisions and who doesn't. The other thing I am nervous about is that the amount of money made available for High Speed Rail is not enough to mitigate its negative impacts. I'm also concerned about having much more freight move through our city.

> Where the study team members listened, another citizen listened and then responded:

> I too share some of your concerns, particularly the one about there not being enough money.

The public engagement consultants did answer questions in these meetings, but one of their primary roles was to facilitate dialogue among citizens and to allow citizens to share questions and concerns with one another and the study team.

As a further step towards peer dialogue, the CAG functioned as an organizational site for citizen-motivated engagement and dialogue. Members of the CAG took the information they'd obtained from the CAG meetings and circulated that information to other community members. Some members of the CAG went door to door to invite citizens to public events. In this way, the CAGs served as an additional dialogic force for the larger overarching dialogic frame. Not only did CAG members talk with one another, but they communicated the information to local churches, neighborhood groups, and community centers. The engagement efforts of the advisory groups extended another level into the community, as citizens worked outside of the institutionalized structure set up by the consultants.

VCC consultants as designers of dialogue across power levels

In the previous two sections, I've discussed dialogue between stakeholders and the consultants and dialogue among peer stakeholders. My study also suggests a third kind of dialogue among stakeholders of differing power levels. This kind of dialogue edges the public engagement process towards the calls from technical communicators like Simmons (2007) and Waddell (1996), who are invested in the efficacy of the public engagement used by governments. In this section, I focus on the two public open houses designed and implemented by the consultants to demonstrate the ways dialogue occurred across power levels.

Two open houses were featured as part of the SCS, and both of them were structured through a series of informative stations, which were set up to cover a particular topic or area of research in the EIStudy. The first open house, for example, had eight stations that covered a range of issues about the project, including details about potential approaches to absorbing the projected rail, and the plan for the EIStudy. In designing the open houses, the consultants insisted that members of the study team attended the entirety of the open house, offering citizens ample opportunity to dialogue directly with subject-matter experts and decision-makers at the open house. Thus, each station was staffed by the engineers, who could speak to the citizens directly and answer questions about the information at that station. For example, one engineer was responsible for researching the vibration and noise pollution that would result at particular crossings; she stood close to the station that covered the potential vibrations so that citizens could ask her directly to clarify a visual or explain the effects of increased rail on their particular residence. Other members of the team wore nametags to indicate that they could answer questions about the project or discuss potential problems or concerns without being tied to a particular station.

In addition to speaking directly to decision-makers, citizens and other stakeholders dialogued through written feedback as well. In the first open house, the VCC consultants developed a public engagement station where citizens were first invited to see the plan for public engagement and then asked to provide feedback about their concerns. The consultants collected information about the concerns of citizens

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in the form of evaluative questionnaires. Rather than keep those concerns in a box or stuffed in a folder, the citizens were asked to post their comments (with or without their names) on a wall covered with butcher paper, which organized the concerns into areas of concern: 3rd street, 10th street, 19th street, or general concerns. Citizens could write as many concerns down as they wanted, but they were asked to place their comments in the corresponding section to give a visual indication of the geographic location on which citizen concerns and questions were focused.

The public engagement station served to create dialogue in several ways. Most obviously, the citizens communicated with the study team about their concerns and questions—and, in turn, engineers and public officials could (and did) respond, follow up, and ask their own questions. Posting written comments on the wall, a second form of dialogue, was both cross-level dialogue and peer dialogue. In posting their comments, citizens were able to read and respond to one another's concerns. I observed citizens read the concerns about one of the corridors and then go back to the comment forms to articulate new or different concerns, even after they had already posted concerns. Additionally, public officials and subject matter experts could visually see the concerns about certain corridors stack up, and they were able to read the comments directly from the forms—in the words and writing of the citizens themselves. In all, the consultants gathered 200 written responses to a public input form, which asked citizens to share answers to three questions about their concerns, desires for improvement, and the values that should inform the study. The public input results became motivators for the next phase of the project, and they were presented to all advisory groups, SMEs, and public officials involved in the project.

The public open house structure was designed to encourage dialogue with both SMEs and public officials, who traditionally have more power in these processes than citizens (see Waddell 1996). Because citizens moved through the space on their own *and* had access to SMEs, they could dialogue directly with individuals making decisions about the project. Although there are limits to this model, this dialogic situation provides an alternative to the kinds of questioning and discussion featured in public meetings. This kind of cross-level dialogue—dialogue between members with different levels of power over

the project—occurred in part because the consultants designed a space that allowed for citizens to move through informational displays at their own pace with direct access to the project team along the way. This design privileges citizens as users of the space and prioritizes the ability of these users to determine their own course: the dialogue was on-demand and citizen engagement with decision-makers was immediate and frequent.

VCC consultants as inclusive planners

These efforts to create dialogic engagement (see Table 1) serve as practical steps that technical communicators can take to design opportunities for dialogue among stakeholders in projects like the Springdale Case. However, such efforts fall short of moving public engagement to the realm of what is just and ethical (to borrow Simmons' terms) if they are not coupled with an inclusive approach to soliciting citizen participation. In other words, even robust dialogue among only elite decision-makers and business owners, for example, does not move public engagement towards just and ethical ends. So technical communicators who hope to adopt dialogic practices must also invest in inclusive practices that tend to citizens' specific needs. As Rose, one of the principal VCC consultants advises:

> Meaningful participation is work enough without adding scheduling, transportation, childcare, learning and language barriers. Convenience is a recognized commodity in virtually every aspect of life and must become so in public decision-making. If we want higher audience attendance and participation, then we must design our outreach processes with our audiences in mind.

She continues, connecting this rhetorical approach of designing for specific audiences to the need for inclusivity:

> We must schedule around their availability; choose meeting sites where they live, work and play; ensure that these sites are readily accessible by public transportation; provide child supervision, if requested; and supply food when meeting during meal times. We must also design input processes that respond to their learning styles and education levels and, if necessary, offer language supports for those whose native language is not English.

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If this seems like a lot of work, that s because it is. However, creating an inclusive environment is essential to counteracting the forces of isolation that habitually undermine public decision-making.

In this section, I provide an overview of three practical and widely applicable strategies for developing inclusive engagement strategies: 1) exhaustive approaches to informing citizens; 2) using multiple modes of interaction; and 3) carefully planned locations and timing for planned events (see also Moore, 2016).

The consulting firm I studied goes to great lengths in their engagement projects (the SCS is no exception) to exhaust their avenues of communication with citizens. In Springdale, this effort began with mailings and the interviews I discuss above. The mailings included a newsletter and a letter, sent to hundreds of Springdale citizens across the city and county. The mailing list included citizen lists secured by collating neighborhood association membership lists, community church membership lists, steering committee suggestions, and stakeholder interviews. The firm aims to make their projects and events inclusive of as many diverse stakeholders as possible and to achieve "representativeness," which they define as "involving all affected publics." VCC consultants seek to guarantee that as many views as possible are represented in the final report on the project. As such, the exhaustive mailing list included citizens across the various railways and across the demographic makeup of Springdale, IL. The additional informational, one-way communication I discuss above also sought to reach wide numbers of citizens.

Beyond the exhaustive initial communicative activities that aimed to engage as many citizens as possible, the engagement firm sought to include citizens through multiple media and modes. The media I discuss in the informational communication strategies are quite obviously diverse. For example, the website, which held information about all meetings/ events (both how to become involved with the events and what had occurred at those events), was coupled with large kiosks across the city and with print newsletters. These various media aimed to encounter citizens where they would typically find themselves— either at the public library or on the Internet. Beyond a multimedia effort, the consultants insisted that the public open houses provide multiple media for citizens to engage with complex technical material. Citizens could view informational videos and dialogue with engineers to learn more about the project. Many of the "stations" included complex visuals and information, which may have been difficult for some citizens to understand. But those visuals were coupled with interactive maps and opportunities to dialogue with the engineers who made the visuals. These multimedia and multimodal approaches develop inclusivity across learners and citizen concerns. If citizens needed to ask questions about a visual, engineers or other project members were available to answer specific questions. This form of inclusivity moves towards the kinds of inclusivity featured in Universal Design (Center for Universal Design), and it demonstrates the value of inclusivity espoused and enacted by VCC Communications.

Finally, VCC Communication consultants carefully planned their events so as to accommodate as wide a range of schedules as possible. Indeed, many public meetings or engagement events in public planning projects exclude citizens because 1) they are held during times that exclude those that work second-shift jobs, catering instead to white collar workers, whose hours are 9-5 ordinarily, or 2) they're held at locations that make attendance difficult for particular groups of people. One example of this kind of oversight comes from an urban planning project I researched in West Prairie, TX, where meetings to discuss the future of the city were consistently held between 5:30 and 7:30 pm. In the Springdale case, the consulting firm insisted that public open houses extended from 4 pm to 7 pm – longer than the engineers believed to be necessary but long enough to accommodate citizens with differing schedules. The consultants also developed strategies for engaging citizens in locations and at times most convenient for citizens. The community presentations, for example, were an "on demand" engagement event, where citizen groups, from churches to neighborhood associations to business groups, could request that the consultants (and other steering committee members) attend their already scheduled meetings to report on the status of the Springdale case, answer questions, and receive feedback from citizens about the project. These presentations demonstrate inclusivity through an attention to citizen needs both in terms of location and timing.

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Central Skills for Public Enagement

My findings provide an overview of basic public engagement practices (see Table 1) and suggest strategies for enacting these practices in inclusive ways (see Table 2). In addition, these findings provide technical communicators with three different potential roles in dialogic and inclusive technical communication: participant, facilitator, and designer (see Table 3). Perceiving the consultants in these roles can help technical communicators determine their own role in public engagement projects and move public engagement projects toward more just and activist ends. In addition, while I link the import of dialogue at VCC with Black Feminist theory, I want to be clear that anyone invested in positive change—not just Black women or Black feminists—can adopt the strategies enacted by the consultants in my study. But adopting a dialogic approach to public engagement requires a particular set of skills that technical communicators can nurture, invest in, and adopt (See Table 4).

In some ways, Table Four demonstrates the ways technical communicators are already prepared to develop public engagement plans for transportation and urban planning. Indeed, some do (see Blythe, Grabill,

& Riley, 2008: Williams & James, 2008). However, the consultants in my study also demonstrated some skills that technical communicators typically do not develop overtly. Although technical communicators openly specialize in and discuss document design, research, and cross-cultural communication, rarely does the importance of listening and of interrogating boundaries, especially as it prepares technical communicators to design dialogues across space and time, come to the fore as central skills. But for the consultants I studied, these skills were central to their ability to function as facilitators, participants, and designers of dialogue with stakeholders. I argue that these skills can augment work we do in the area of public engagement as well as approaches to all areas of technical communication that require collaboration, qualitative research, or interdisciplinary work.

Listening: A technical communication skill

Listening is a central skill for the consultants I studied as they facilitate and engage with dialogue. Throughout my research, I observed the VCC consultants attempt to give voice to those typically unheard, but their public engagement also included revisions of their processes to accommodate citizens. These revisions

Table 2 Inclusive Best Practices for Public Engagement (Adapted from Moore, 2016)

Inclusive Practices	Central Details
Exhaustive Circulation of Information	Develop a stakeholder list that casts as wide a range as possible, across geographic location, demographics, and community roles.
Multimodal and Multimedia Engagement	Create opportunities for engagement across learning styles (including kinesthetic, visual, oral/aural, and linguistic) Use multiple media to communicate stakeholders; don't assume they'll prefer digital media.
Scheduling for Diverse Stakeholders	Consider the living, work, and family situations of potential stakeholders and schedule meetings at convenient locations and times for all stakeholders.

Table 3 Technical Communicator Role in Dialogic Public Engagement

Types of Dialogue	TCers' Roles	Primary Responsibility
TCer to Stakeholder	Participant	Speak or listen to stakeholders to develop a public engagement plan
Peer Dialogue	Facilitator	Prompt citizens to speak or listen with one another—the consultant is present but not the primary speaker or listener
Cross-Power-Level Dialogue	Designer	Create situations for dialogue among stakeholders across power levels—the consultant creates activities or designs spaces that prompt stakeholders to speak or listen

Table 4 Skills and competencies necessary for Technical Communicator's Role in Dialogic Public Engagement; Bolded items are under-studied in technical communication

Role of TCer	Selected Skills and Competency Required
Participant	**Listening** **Boundary Work** Document Creation Research Cross-Cultural Communication
Facilitator	**Listening** **Boundary Work** Cross-Cultural Communication Public Speaking Leading Discussion/Facilitation
Designer	**Listening** **Designing Space and Schedules** **Boundary Work** Cross-Cultural Communication Documentation Creation

might be seen as an effort to listen differently—to allow the citizens to dictate how the listening happens. This move echoes Savage's (2013) call for an increased attention to listening as one approach to more ethical and responsible cross-cultural communication. As part of the larger EIStudy, the firm's commitment to listening to citizens on their own terms (on their own turf, in their own time) established trust in the process. Hoff-Clausen (2013) ties trust directly to listening in the Danske Bank credit collapse, claiming that "the explicit act of listening contributes to the rebuilding of trust by providing *acknowledgement*" (p. 433). In Springdale, it was not merely listening that established trust—but listening in ways that reflected the values of the communities they were working with. This is represented by their community presentations, where they listened when and where citizens requested, or by their decision to walk the 10th Street corridor at the request of citizens. In order to develop effective public engagement, then, listening must be tied to actionable outcomes that reflect the values of the communities in which our projects are embedded.

Feminist and critical researchers have long seen qualitative research methods as opportunities for giving voice to individuals whose stories, perspectives, or views are typically ignored or left out of important questions.

These methods, like the semi-structured interviews used in the Springdale case, are not merely data collection techniques; they can also be reinvented as listening techniques. Put another way, they can be seen as a re-investment in listening. However, such a stance may require, as in the case of the consultants, a commitment to building communities and relationships through these methods. This commitment moves beyond merely seeing the value in others' stories or perspectives and may require seeing public engagement as what Tuhiwai Smith (2012) describes as "community research" rather than mere person-based research or field research. Critical approaches to person- or field-based research have focused on respect for the individual participant. Community research attempts to validate not just the individual speaking but the community or site of research. This approach to listening moves beyond merely employing qualitative research methods and draws technical communicators into a community advocacy role.

But listening as an engagement strategy is an ecological activity—it requires not just an attention to what is said, but to the site of engagement. VCC's approach to listening in the SCS (and other cases) depended on their willingness to engage with the city. As I heard the VCC consultants discuss the 10th Street corridor walk, I began to understand that feeling the vibrations, hearing the traffic, and spending time with the city were a part of their engagement process. And they had already engaged with the city in these ways before the citizens requested a corridor walk. In claiming that engagement is ecological, I do not merely mean that it required multiple modes of engagement. I also mean that listening—as seen in VCC's work—requires putting the claims of all stakeholders in relationship with one another. Rose, one of the consultants, describes this work as intentional listening, wherein listening allows central/main ideas to emerge. These central ideas, of course, are accompanied by some agreement/convergence and some disagreement/divergence, bringing about fresh insights and new ideas. The intentional listening, then, allows for decisions and conclusions to emerge. And so the VCC consultants not only listen to individuals and places, but they also listen for institutional possibilities and community potentials.

Listening, finally, breeds concrete, actionable results. One of the most important lessons learned from VCC's public engagement process is that listening requires response and action. One claim

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VCC makes about its public engagement process is that it is results-oriented, and in some ways this claim is market-driven: they tell their clients that their engagement process gets results. But, importantly, in my interviews, three consultants mentioned that one of the most important elements of their engagement work is allowing citizens to see the ways they have been listened to. For example, in Springdale, citizens told the consultants that they wanted Steering Committee members to come see where they lived, and the consultants responded by developing an additional event in the public engagement plan. When citizens suggested one approach to addressing the increased rail might be to take the railroads out of the city center entirely, the project team investigated that alternative and presented the results from their investigation. Moving the railroads outside of the city center entirely proved to be an unfeasible solution (because of the marshy land surrounding the city), but the option was considered and transparently reported on because listening and actionable responses were a priority of the project.

Interrogating boundaries: A technical communication skill

An additional skill employed throughout the dialogic and inclusive engagement process was boundary work—or recognizing where boundaries existed in the project and determining how to produce meaningful dialogue despite these boundaries. According to Wilson and Herndl (2007), boundary work involves interactions that lead to discussion, collaboration, or understanding across boundaries. They draw on Star and Griesemer's (1989) articulation of boundary object and claim that boundary work focuses specifically on the epistemological differences between groups of scientists, planners, or business owners. Wilson and Herndl see potential for boundary objects to move beyond mere coordination; instead they see boundary work as shifting the stability of boundaries. They explicate how a knowledge map used in a Los Alamos National Laboratory project became an object that "circumvented the experts' move to demarcate their particular disciplinary or institutional claims as epistemically superior, [and] [b]oundaries became more contingent than abstract and absolute" (p. 147).

In public engagement projects, where the role of both physical and cultural boundaries are so important,

boundary work can be considered central to project success. In the Springfield project, the consultants negotiated a host of historical, cultural, economic, and political boundaries; indeed, in dialoguing with stakeholders, facilitating peer stakeholder dialogue, and in designing cross-power-level dialogue, technical communicators are challenged to consider the ways a range of boundaries impact the potential for change in a community. For example, the creation of advisory boards, when considered in terms of boundary work, becomes more than the mundane organization of bodies; instead, the advisory boards can recreate, blur, or reiterate cultural and political boundaries. In light of my findings, I consider Wilson and Herndl's definition of boundary work, which focuses on epistemological boundaries, too limited to accommodate the kinds of boundary work technical communicators must engage in for public planning. For planning projects, boundary work needs to account for physical boundaries present in transportation and urban planning as well as the more nebulous boundaries that exist because of power differentials.

Porter, Sullivan, Blythe, Grabill, and Miles (2000) articulate the importance of boundary interrogation, which falls under the umbrella of boundary work and more appropriately conceptualizes the boundaries technical communicators must negotiate. Because Porter et al. draw on cultural geographers for their definition, they see the boundaries of institutions as not merely cultural or institutional but also material, allowing for a more literal interpretation of boundary work. Boundary interrogation involves both the rhetorical boundaries created through cultural power structures as well as the material boundaries. Further, they see boundary interrogation as explicitly tied to "the power moves used to maintain or even extend control over boundaries" (p. 624). This makes boundary interrogation a particularly apt conceptualization for the skills VCC consultants use in creating cross-power-level dialogue in public engagement processes. The consultants worked across physical, political, and cultural boundaries to transgress and challenge the traditionally exclusive silos of decision-making in public planning.

The move towards dialogic and inclusive public engagement, then, requires that technical communicators attend to boundary work—both physical boundaries and sociocultural and/or political.

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In the Springdale Corridor Study, the 10th street train tracks, as an example, created a physical boundary that exists between two cross streets. Although those boundaries could change if citizens decided to start using one of the crossings for new purposes like a rally or sit-in, the regular train schedules limit the possibilities for restructuring that particular boundary. But many citizens also considered it a racial boundary, where the Black community is segregated from the white community. This sociocultural boundary is a less obvious one, wrapped up in over a century of racial tensions. As the consultants found out through dialogue and an investment in understanding citizens' lived experiences, the boundary has been built through years of disappointment after well-intentioned projects fall flat, disagreement about how to proceed with city planning, and dismissal of the Black community's concerns. In engaging citizens along the 10th street corridor, as I discussed above, VCC learned to consider this corridor as a double(d) boundary. The ability to see this doubled boundary builds from community listening as well as the acknowledgement of citizens' lived experiences of the city as racially charged. Layering the physical boundary with the cultural boundaries expressed by citizens shaped the project in meaningful ways, both in how the consultants planned the public engagement events and in how they facilitated dialogue among citizens.

Because boundary work provides an approach to assessing physical and material boundaries, it can also help with a final under-examined skill: designing for schedules and spaces. Given the strong history of user-centered design in technical communication, many citizen-centered approaches to engagement may seem commonsensical. However, designing schedules and spaces for citizens challenges the materials of traditional design. Boundary work can help. For example, Rose suggested we accommodate citizens' schedules through convenient location, but how did the consultants know to hold CAG meetings at a local church east of the 10th street corridor? Part of these decisions may grow from logical reasoning: some place close to the citizens. But when citizens were coming from around the city, boundary interrogation and work helped the consultants discern that scheduling the meetings west of the 10th street corridor would cause already discouraged and cynical citizens to feel out-of-place and in someone else's community. Incorporating boundary interrogation

into the technical communication skills set can enable citizen advocacy in intentional and ethical ways that are not possible when we ignore the material, rhetorical, and cultural boundaries of a project.

Conclusion and Limits of Study

Ideally, the conclusion of this article would report on the SCS project's final outcome and provide a neat and tidy epilogue to the data I report here. But, as Lana shared in an interview, transportation planning projects take years—sometimes decades—to come into fruition; indeed, the SCS involved plans for the construction of rail in 2020. At the time of this writing, the SCS project continues to be in the planning phases and VCC continues to engage citizens in discussions of the project. You might be wondering how that could be. In 2011, because of federal funding issues and changes to the long term railroad planning, the SCS project was folded into a larger railway project, truncating the initial plans for public engagement but extending the timeline of rail development projects in Springdale. These unforeseen changes to projects present challenges for technical communicators who pursue ethical and just public engagement: technical communicators ultimately have very little control over the project. But this factor, I think, makes the investment in dialogue, listening, and boundary work of clear import for technical communicators.

This EIStudy reveals the messiness of working towards ethical and just ends within the bounds of an EIS and highlights the messiness of working with citizens on large-scale planning projects. In interviews, both Jocelyn and Rose expressed frustration about the institutional processes that constrain their work, but they suggested that this connection to the government, engineering firms, and other corporate entities that control the projects are not all bad. They reported, in fact, that the painstaking steps of inclusive and dialogic public engagement processes serve as instructive models for NGOs and engineering firms. Both of them spoke of specific cases wherein continued dialogue with firms and organizations resulted in less resistance to public engagement and increased citizen involvement at the decision-making level. In this way, the kinds of institutional transformation pursued by Black feminists can also be adopted by technical communicators who see the need for shifting corporate culture to

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be accepting of citizen input, open to dialogue as a knowledge-making activity, and engaged with citizens as legitimate participants in public planning.

This study is decidedly limited in its scope—most specifically in its ability to accurately portray the project from citizens' perspectives. My primary site of study was the VCC firm, and my objective was to learn about their approach to public engagement. This limits the claims I can make about citizen involvement, and it limits my ability to offer often voiceless citizens a voice. Additionally, these findings come from *one* case of public engagement as enacted by *one* firm (though many of these practices were mimicked in two other cases I studied). My perspective on the project came from within the public engagement firm, which increases my knowledge of the planning, preparation, and position the consultants took in the cases. At the same time, my focus on the firm excludes robust knowledge about the ways other decision-makers, like Hendricks Engineering or the Federal Railroad Association, viewed the engagement practices.

Even so, the practices that the consultants use in order to further inclusivity can be employed by technical communicators to augment the treatment of citizens in public engagement processes. My findings reveal practices not explicated in the EIS, and they reveal a yet unreported approach to building public engagement around dialogue. The skills, practices, and approaches that VCC Communications enacts in their public engagement planning projects are, I think, widely applicable outside of the specific realm of public planning.

As practitioners increasingly work across cultures and engage with communities unlike their own, principles of dialogue and inclusion can be guideposts for our work. In other words, I argue that technical communicators should participate in, facilitate, and design dialogue whenever we enter communities; practices I report here can be modified or implemented whole piece for a range of community research and corporate projects. Any attempt to plan for future changes can be augmented by incorporating listening and boundary work into our skill sets. That said, in this article, I have only skimmed the surface of discussing the strengths of both listening and boundary work for technical communication, and notably, I provide only a truncated frame for seeing Black Feminism as a practice-based foundation for technical communication. These topics warrant much

more research and reflection on their implementation in the workplace. In other words, this article is just one early effort in much larger discussions about what it means to implement ethical, just, and effective technical communication in the public sphere.

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About the Author

Kristen R. Moore is an assistant professor of Technical Communication and Rhetoric at Texas Tech University. Her research interests include institutional rhetoric and change, cultural rhetorics, and public technical communication with a focus on making public decision-making more representative and equitable. As a founding member of Women in Technical Communication, she also researches feminist mentoring and its potential for advocacy in organizations. Her work has also been published in *IEEE Transactions on Professional Communication*, the *Journal of Technical Writing and Communication*, the *Journal of Business and Technical Communication*, and edited collections.

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Books Reviewed in This Issue

Introducing SEO: Your quick-start guide to effective SEO practices

Search Engine Optimization (SEO), according to Shenoy and Prabhu, provides ways to "improve the visibility of websites using different strategies and techniques" (back cover) and that is the working definition for SEO as it is used in *Introducing SEO: Your quick-start guide to effective SEO practices*.

This book's audience could be writers, marketers, or others who support SEO efforts or those who want an introduction to the topic with the idea of becoming the technical support for SEO efforts. The authors have a good grasp of the subject and pick an interesting, informative array of topics for *Introducing SEOs*. Shenoy is a technical writer by trade, coming from Mumbai, India, and being an author of several other books. Prabhu is a user interface (UI) Developer specializing in HTML, CSS, and JavaScript, with this being his second book.

Effective use of keywords, link building, and online social media marketing appear in part as what this book covers. These techniques contribute to having a site appear appropriately in search engine results.

Readers of *Introducing SEO* will appreciate the many examples and screenshots that appear as with tools such as Google Analytics (pp. 44-48) providing information on numbers and locations of visitors and trends.

Sitemaps appear as a chapter where the authors explain this as a "list of pages within a website" which can "exist in a form accessible to crawlers, humans, or both" (p. 63). The two versions of sitemaps are XML and HTML. The HTML version is human friendly while the XML version is "tailored for the search engines" with sitemaps telling "search engines about the content type on the listed pages" (p. 63). Readers should find the example XML and HTML sitemaps in this book of interest.
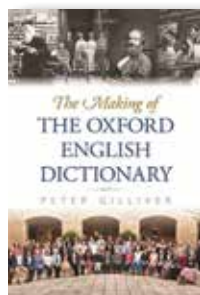
You do not need any prior knowledge of SEO before reading *Introducing SEO – Your quick-start guide to effective SEO practices* as it is meant for a novice audience.

Jeanette Evans
Jeanette Evans is an STC Associate Fellow and active in the NEO community, currently serving on the newsletter committee. She holds an MS in technical communication management from Mercer University and published titles such as "Emerging Technologies: Where We Have Been and Where We Are Going" and "What We Can Learn from Project Managers" in STC's Intercom magazine.

The Making of the Oxford English Dictionary

In 1857, members of the London Philological Society had for some time been dissatisfied with the available dictionaries, so they established a committee to determine lists of words that were not found. The Unregistered Words Committee consisted of three members: Herbert Coleridge, the grandson of Samuel Taylor Coleridge; Richard Trench, the Dean of Westminster; and Frederick Furnivall.

Peter Gilliver, in his *The Making of the Oxford English Dictionary*, divides this scholarly book into 13 chapters with an interesting "Interlude" where he explains how the editors used quotations found by readers. He traces the origin of the *Oxford English Dictionary* (*OED*) to a paper by Trench, a theoretical, historical philosophy to be used when constructing a new dictionary.

The first editor of the *OED* was Coleridge (appointed 1858). Unfortunately, he had tuberculosis and died on April 23, 1861. Furnivall became the next editor. The most famous early editor of the OED was James Murray (appointed in 1876).Once the Society decided to create a new dictionary, they needed to find a publisher. Eventually, after being turned down by a number of publishers because of the size of this project, Oxford University Press (OUP) agreed to take it on.

To try to make the work systematic, the Society divided the history of language into three periods: from the 1100s to 1526; 1526 to 1674, the death of

Milton; and 1674 to the present. Further, the Society established two committees: one looked at words and meanings and the second looked at etymologies. The appointed editor would manage both.

The method the Society agreed on was to invite readers to submit quotations they found while reading that used the words. Eventually, Murray had to build a separate building behind his house calling it the *Scriptorium* to house not only the growing staff but also the slips, which, by the 21st century, totaled well over 10 million.

While the book is clearly aimed at a scholarly audience, technical communicators can find material relating to managing large projects. Gilliver covers, for example, the costs to OUP, eventually running into millions of pounds as the project continued with vague prospects of recovering all or part of that expenditure. A second area was time; how much time could be devoted to developing this dictionary, which translates into increased costs and personnel needs. Third, Murray and future editors were constantly arguing with OUP about quality, again related to time and costs.
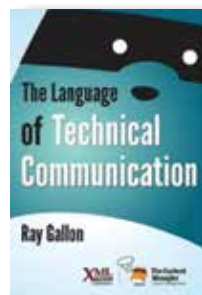
The Making of the Oxford English Dictionary contains an astounding number of footnotes. In, for example, Chapter 3, there are almost 300 footnotes. OUP can broaden the book's appeal by separating source from content footnotes. Besides this problem, Gilliver has written an interesting book on how this dictionary went from proposals in 1858 to its current form, which is the *OEDonline* (also called *OED₃*). So if you have an interest in how meaning develops, *The Making of the Oxford English Dictionary* is a good book for you to have personally or in the company library.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

The Language of Technical Communication

Gallon's *The Language of Technical Communication* is really a kind of glossary that focuses on content. He identifies 52 terms that are central to technical communication and then asks knowledgeable people what the terms mean and why they are important. Gallon adds a brief biography and contact information for each responder and follows up with an answer to his own question: "Why does a technical communicator need to know this?" Most of the explanations are one or two sentences with some (John Carroll's comment on "minimalism," for example) not even being a sentence.

Gallon divides the terms into 5 groups: Core Concepts (Part I); Technical Concepts (II); Standards and Conventions (III); Deliverable Presentations (IV); and Future Directions (V). The division allows random access to specific terms without having to read cover-to-cover. Besides Subject and Contributor Indexes, he provides a list of other terms focusing on content strategies based on Ann Rockley's *Managing Enterprise Content*.

The listing suggests several questions: for example, Why these 52 terms? Why 52 and not more or fewer? Why these "experts"? All would be easily answered in the "Preface" but aren't. Yet, if Gallon has in mind the assumed reader mentioned by Alan Houser in the Foreword, his assumed readers range from technical communicator trainees needing an introduction to their new jobs to experienced communicators who want to keep current. The questions can be important.

The more natural reader should be students being introduced for the first time to technical communication as a discipline. When studying any discipline, students must first master the discipline's terminology before moving on to the specifics. Several other disciplines have such vocabularies. For example, in rhetoric, there is *A Handlist of Rhetorical Terms* that provides a vocabulary for students studying rhetoric.

Two suggestions for a second edition: (1) a brief "For Further Reading" section and (2) where appropriate, an example. A reader who may have heard of *metadata* may want to read more about it. Also, cross-referencing: Why, for example, isn't the entry
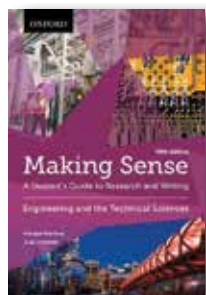
on "Omnichannel" (p. 74) cross-referenced to "Single Sourcing" (p. 56) and *vice versa*? Cross-referencing the term to more general terms such as DITA and XML would be a start, but a reference to a basic metadata primer would be more helpful. Some readers would not know, even from "Why is it Important" and "Why does a technical communicator need to know this" just what metadata looks like. So a brief example would help. Second as I mentioned above, I think the book would be better targeted to students rather than practitioners, although they would also benefit from having the terms available. Not only would the student market be larger, and perhaps lead to a reduced price, but also the students would learn what the vocabulary is for their chosen discipline.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

Making Sense: A Student's Guide to Research and Writing - Engineering and the Technical Sciences

Margo Northey and Judi Jewinski's 5th edition of *Making Sense: A Student's Guide to Research and Writing - Engineering and the Technical Sciences* combines the essentials of technical writing with the utility of a handbook. Clearly written, direct, concise, and yet comprehensive in covering the fundamentals, the book takes an unadorned, business-like approach, like a Strunk & White version of technical writing.

As such, this book is ideal for instructors looking for a framework they can supplement with their own examples and specific content. The book is organized to follow "a standard developmental process from design to prototype to product" (p. vii) that lets the instructor reflect on the reality of documenting product development through the course curriculum. Instructors can then customize the basic material—such as generic descriptions of IMRAD (Introduction, Method, Results, and Discussion) and the format of proposals and project reports—to fit the make-up of a particular class.

An unusual addition for a technical writing text is a chapter on "writing in other contexts" that offers advice on generic pre-writing principles, organizing argumentative essays, preparing for and writing essay tests, and writing reviews of books or articles. Also unusual is the section on laboratory notebooks, especially the emphasis on the need for rigorous documentation and the legal consequences of careless record keeping. Both of these additions are valuable, original, and definitely useful for undergraduate students.

Similarly useful is the crisp, practical advice on organizing and documenting collaborative efforts. Students tend to think of group work as informal, when of all technical endeavors, it probably requires the most professionalism. Successful teamwork requires a formal, disciplined approach: assigning and documenting roles and responsibilities, recording individuals' progress in fulfilling their obligations, tracking progress with meeting minutes, recording technical and scientific progress in a lab notebook, generating and using a Gantt chart to manage the schedule, and providing templates for each team member to document work completed. Such rigor may surprise students, but is utterly consistent with professional engineering and scientific work.

The chapter on presentations emphasizes the need to map the content to the audience's level of knowledge and to answer the "So what?" question by explaining why anyone other than the presenter should care about the project. Similarly, resumes and cover letters are not autobiographies but marketing tools designed to show how the applicant's skills and experience can help a company solve its problems. In each case, the student learns that fulfilling the audience's needs is paramount to successful communication.

As noted, *Making Sense* also functions as a handbook, with clear advice on usage, punctuation, grammar, and techniques for helping English as a

Second Language (ESL) students. The glossary and comprehensive index make using the text as a reference easy. For instructors who prefer to supplement a text with their own material, this book is ideal.

Donald R. Riccomini
Donald R. Riccomini is an STC member and a senior lecturer in English at Santa Clara University, where he specializes in teaching engineering and technical communications. He previously spent twenty-three years in high technology as a technical writer, engineer, and manager in semiconductors, instrumentation, and server development.

Teach Students How to Learn: Strategies You Can Incorporate Into Any Course to Improve Student Metacognition, Study Skills, and Motivation

Saundra Yancy McGuire with Stephanie McGuire. 2015. Sterling, VA: Stylus Publishing. [ISBN 978-1-62036-316-4. 240 pages, including index. US$32.00 (softcover).]

During your university odyssey, you might have failed to notice that the ability to learn isn't innate; it's a skill that must be taught to students, but rarely is. As a result, most students enter university unaware they must become active problem-solvers rather than passive receivers of information. Academics know this implicitly, but like most subject-matter experts, forget that students don't share their knowledge. Challenging teachers to reject their assumption that students arrive at university prepared to learn—and convincing them to teach their students new ways of learning—is the goal of *Teach Students How to Learn: Strategies You Can Incorporate Into Any Course to Improve Student Metacognition, Study Skills, and Motivation*.

In this book, the McGuires emphasize the need to help students rethink their approach to learning by teaching them metacognition skills. They present a structured plan for transforming the learning experience by teaching students Bloom's hierarchy, effective study and learning strategies, and how to become motivated to learn. These skills are supported by detailed strategies for transferring this knowledge to students. But the authors also remind us that teachers must learn what works from their students; teaching is a partnership, and different partners have different requirements. The book comprehensively summarizes best practices for creating skilled learners who recognize the amount of work required to learn complex subjects and are motivated to do the work. The individual points may seem obvious, but I'll bet you're not using them all to guide your teaching. (*Mea culpa*.) *Teach Students How to Learn*'s an essential resource because so much information is gathered concisely in one place, with a structured teaching plan that includes downloadable slide sets you can customize for your own students.

The authors cite much anecdata to support their approach, but also a few more rigorous studies that offer convincing evidence. Overall, this may not satisfy the academic mind, but the McGuires persuaded me their approach has enormous potential. Unfortunately, the writing style is an obstacle. The book begins like a late-night infomercial (complete with testimonials), then evolves into a wandering and informal approach that takes several chapters to settle into a more conventional presentation of the authors' thesis. Once this happens, the book becomes an effective learning tool for teachers, but the organization needs improvement; information that should be integrated with specific chapters often ends up scattered or separated into appendices.
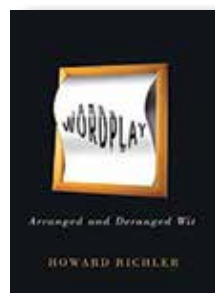
Despite these drawbacks, *Teach Students How to Learn* provides method and motivation to become more effectively involved in helping your students succeed.

Geoff Hart
Geoff Hart (www.geoff-hart.com) is an editor, technical writer, and translator who often teaches these skills to others.

Wordplay: Arranged and Deranged Wit

Howard Richler. 2016. Vancouver, BC, Canada: Ronsdale Press. [ISBN 978-1-55380-452-9. 160 pages, including index. US$19.95 (softcover).]

Wordplay: Arranged and Deranged Wit is written for people who love language, have a sense of humor, and who delight in witticisms crafted by a master wordsmith. It also serves as an introduction to different literary devices that rely on both the intellect of the writer and the reader. Whether you are

studying Shakespeare, writing your first novel, or just looking for some enjoyable reading, *Wordplay* could be the book for you.

Richler begins the book by dividing it into two sections. The first is for "arranged" wit, or literary humor that the author intended. Examples in this section include puns, riddles, and creative insults. The second section is the "deranged" wit, which is more accidental. That section has chapters covering typos, bloopers, malaprops, and mistranslations. Within each section are chapters devoted to a singular theme. For example, one chapter is dedicated to puns. A brief history of puns is included, along with a topology of puns. Examples are given, ranging from Shakespeare to Groucho Marx. The book includes clever quizzes at the end of most chapters that are designed as a puzzle for the reader to test their understanding of the chapter concept. Richler provided some answers earlier in the chapter, but often the puzzles rely on the reader's thinking skills. To help you keep your wits, instead of losing them, Richler supplies the answers at the end of the book. The second section is structured the same way as the first, but with unintentional verbal humor. The chapter on mistranslations serves as a warning beacon for all people who write for an international audience as to what can and will go wrong in the hands of a poor translator.
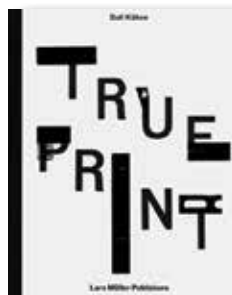
Overall, *Wordplay* is a fun book guaranteed to raise a smile. Readers must be vigilant while perusing the book, since many of the examples require focus to completely appreciate. Not all chapters are as strong as the others, but they are all amusing. The addition of the quizzes in most chapters adds a fun, gaming aspect to the book. So if you like to keep your allegories on the banks of the Nile, know that ancient Egyptians travel by Camelot, regularly read the Gnu's News (a tabloid for antelopes), or enjoy written humor in general (or out of a general, because *in* a general it is too dark to read), you'll appreciate *Wordplay*.

Timothy Esposito
Timothy Esposito is an STC Associate Fellow with over 15 years of technical communication experience. He is currently president of the STC Philadelphia Metro Chapter. Before becoming president, Timothy was chapter vice president, treasurer, webmaster, and scholarship manager.

True Print

True Print is a fascinating cultural and historical examination of letterpress printing through the contemporary graphic designer's lens. The book provides insight and inspiration for everyone who is interested or concerned with typography and graphic communications. This must-have book unveils Kühne's unorthodox style through an amalgamation of analog and digital tools for letterpress printed posters and labor-intensive typographic compositions **for modern visual communication forms.**

Kühne is one of the premiere Swiss letterpress printmakers in the 21st century. This book is an all-inclusive record of his innovative design process and abounding body of graphic design work. Contributor Rudolf Barmettler notes, "Dafi always aims to avoid his design looking in any way "retro" or "handmade." He staunchly opposes romanticized, conventional ideas about wood type and centered composition, and also refuses to idealize nineteenth- and early twentieth-century print technologies. Instead, he seeks out new potential for digital and analog design, as well as possible new approaches to and materials for the letterpress process, beyond the familiar metal type, wood type, and linoleum" (p. 6).

Letterpress typographic design has seen a recent resurgence in contemporary practice. In an era of accelerated technological changes, a small number of graphic designers are reshaping typography from an earlier period for modern visual communication. Hendrik Werman, a Dutch designer and printmaker during the 1920s–1940s, established a benchmark for innovative printing techniques and revolutionary typographic experiments on the printing press. He believed that a more organic, human connection to design was critically important and that graphic design not be confined to the technology of our time. Kühne, in a similar way, applies his handcrafted production to ready-made components and traditional methods, while experimenting with new techniques, unorthodox materials, and different approaches to letterpress printing.

Contributor David Shields points out, "The work is firmly grounded in two approaches: that of the pragmatic commercial printer and that of the experimental designer. The pragmatics of the printer is dependent on the economic need to produce work for a client as quickly and efficiently as possible. The experimental approach grapples with the meaning of the form and works at challenging the visual elasticity of the compositional space…By combining these seemingly antithetical approaches, Dafi uniquely carves out a hybrid space for both experiment and production" (p. 12).

From beginning to end, Kühne has laid out a beautiful design system that flows in a free, harmonious manner revealing lettering styles and constructing a rare jewel of typographic art. *True Print* is an all-important handbook for design students interested in letterpress printing as well as an indispensable guide for professional designers, or anyone interested in letterpress revival and both traditional and recent Swiss graphic design history.

Richard Doubleday

Richard B. Doubleday is an associate professor in Graphic Design at Louisiana State University's School of Art. He is a contributing author of Dialectic, a scholarly visual communication journal, and Graphic: 500 Design that Matter. Richard has been published extensively in leading graphic design journals.

Teaching and Researching Writing: Applied Linguistics in Action

Ken Hyland. 2016. 2nd ed. New York, NY: Routledge. [ISBN 978-1-138-85946-3. 316 pages, including index. US$51.95 (softcover).]

Teaching and Researching Writing: Applied Linguistics in Action is an extraordinary example of thoroughly researched, yet readable scholarly writing that is understandable to students and useful to veteran teachers and academics who study writing.

The third edition is a complete reorganization of the second edition and includes new chapters and information about current writing technology, research regarding technology and writing, automated marking, and the dominance of English in the globalized world. As Hyland mentions, "the broad scope of what we know about writing and how we might best teach it remains, but the field has also changed" (p. xi). This new edition goes to great lengths to include information about these changes in teaching and researching writing. To grasp the breadth and depth of these changes, Hyland takes readers on a progressive journey through the orderly organization of four sections. "Understanding Writing" provides an overview of the main approaches to writing, key understandings of writing and writing research, and debates and topics for further exploration. This section lays out many foundational theories of writing and writing research that prepare readers for "Researching Writing." Included in this section are chapters on research design, research topics, and two chapters that explore research case studies, their design, aims, results, discussion, and opportunities for future research. The chapters in "Teaching Writing" demonstrate the importance and practical application of theory in the classroom. The theoretical foundations explored in the chapter "Approaches to Teaching Writing" are useful for novice and experienced teachers who learn or revisit theories associated with the various ways writing can be taught in the classroom, such as text-, writer-, and reader-oriented approaches. As an experienced writing teacher, I found myself analyzing my own approaches to teaching writing and visualizing ways I can incorporate other perspectives. Especially helpful is the chapter "Teaching Writing: Classes and Courses," which provides course syllabi, methods, materials, and assessments for several classes where readers can borrow in whole or part whatever works best for their own classes. The "References and Resources" section includes up-to-date books, articles, Web sites, listservs, and other resources that any student, teacher, or researcher will find helpful in their own endeavors. It is a storehouse of contemporary resources.

Each chapter has visual guides to help readers comprehend key points, which is helpful with such a comprehensive book. Such guides include a bulleted list of what each chapter covers and textboxes that bullet or number key concepts and quotes from reputable writers, researchers, and teachers. The textboxes are not simply visual aids; they provide context and background information for theoretical discussions within the
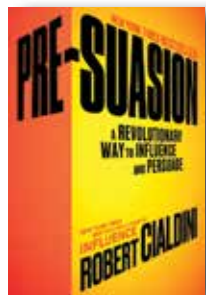
chapters. Hyland mentioned teachers, practitioners, and researchers as his main readers; however, *Teaching and Researching Writing* is so well organized and well written that it would be a good resource for college students to learn about the foundational theories and issues about teaching writing.

Diane Martinez
Diane Martinez is an assistant professor of professional and technical communication at Western Carolina University. She previously worked as a technical writer in engineering, an online writing instructor, and an online writing center specialist. She has been with STC since 2005.

Pre-suasion: A Revolutionary Way to Influence and Persuade

Robert Cialdini. 2016. New York, NY: Simon and Schuster. [ISBN 978-1-5011-0979-9. 414 pages, including index. US$28.00.]

Pre-Suasion: A Revolutionary Way to Influence and Persuade comes over 30 years after Robert Cialdini's influential book *Influence*, but the newer work really serves as a prequel. *Pre-suasion* argues that people can increase their odds for effective persuasion by setting the stage before making their big ask. As Cialdini writes, "the effectiveness of persuasive messages…will be drastically affected by the type of opener experienced immediately in advance" (p. 75). To bolster its provocative central claim, the book's three parts offer plenty of accessible data and an array of interesting anecdotes and examples.

Part 1 focuses on ways that channeling attention in favorable directions primes people for persuasion later on. According to Cialdini, humans naturally assign extra importance and causality to whatever they are paying attention to. For instance, jurors more often believe false confessions when a camera films a suspect's face directly rather than an entire interrogation room, and people will more likely choose French wines when French music plays in the background. Aspiring persuaders can deploy relevant cues to direct an audience's attention, making them more receptive to the eventual message.

Part 2 argues that pre-suaders should create favorable associations. Once we pay attention to something, we're more likely to notice and act on related ideas. Cialdini argues that "influence attempts, including pre-suasive ones, will be successful only to the extent that the *associations* they trigger are favorable to change" (p. 16). In one of Cialdini's examples, the power of association explains why employees at a call center perform better after viewing a photo of a runner winning a race. *Pre-Suasion* offers several tools, including framing, metaphor, and even place to help pre-suaders create similar productive associations.

Part 3 offers best practices, beginning with six time-tested concepts for directing attention and persuading audiences: reciprocation, liking, social proof, authority, scarcity, and consistency. Cialdini adds a seventh concept, unity, which focuses on the persuasive power of shared identities. Most importantly, Cialdini offers a chapter on the ethics of persuasion that, while short and placed close to the book's end, encourages readers to consider the consequences of their persuasion attempts. A final chapter discusses post-suasion—strategies for making persuasion stick after the act—but this brief section feels more like a teaser for a third book in a trilogy.
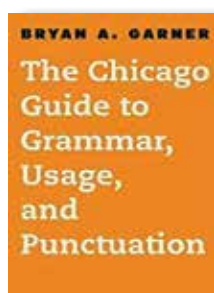
Cialdini breaks new ground by emphasizing how persuasion begins long before it becomes obvious. Communicators, whether they consider themselves overtly persuasive or not, can "up" their game by realizing how many factors contribute to a successful message. Because the book targets a mass audience, some of the concepts and examples obviously hold more direct relevance for technical communicators than others. But anyone with interest in language, persuasion, and human behavior will learn a lot from *Pre-suasion*.

Ryan Weber
Ryan Weber is an STC member and program chair for the STC Huntsville/North Alabama chapter. He directs the Business and Technical Writing Program at the University of Alabama in Huntsville. Ryan hosts the podcast 10-Minute Tech Comm featuring interviews with technical communication scholars and practitioners.

The Chicago Guide to Grammar, Usage, and Punctuation

Bryan A. Garner. 2016. Chicago, IL: The University of Chicago Press. [ISBN 978-0-226-18885-0. 584 pages, including indexes. US$45.00.]

If you have used the 15th or 16th edition of *The Chicago Manual of Style* (*CMS*), Garner's name should be familiar. Beginning in the 15th edition, he contributed a chapter on grammar and usage. Now he has built on that work to produce *The Chicago Guide to Grammar, Usage, and Punctuation*.

He divides the *Guide* into five major sections: Grammar ("The Traditional Parts of Speech"), "Syntax" (including sentence diagramming), "Word Formation" (morphology), "Word Usage" (based on his *Garner's Modern English Usage*), and "Punctuation." He adds a "Selected Glossary," "Bibliography" of quotations, a "Select Bibliography," two indexes ("Word" and "General"), and a "Pronunciation Guide."

In the Introduction, Garner briefly traces the history of grammatical study as well as asserting that his object is to provide a practical approach to his topics. Numbering the various subsections as found in *CMS* makes quick access possible even though the indexes cite page and not section numbers. His approach, although he states that it will be descriptive, quickly becomes rule-based and derives from Standard Written English. Grammar, Garner tells us, is a set of rules governing utterances.

Part I, "The Traditional Parts of Speech," looks at the eight traditional parts of speech. After a brief introduction, he mentions other numbers ranging from 4 to 10 and even as many in America grammar as 33. He settles on eight because from 1761, in British English, eight was widely accepted because Joseph Priestley was its main advocate. Garner also supplies the linguistic vocabulary for many of the traditional terms.

Part II, "Syntax," discusses types of sentences and clauses and includes sentence diagramming and transformational grammar. In Part III, "Word Formation," he divides words into prefixes, stems or base words, and suffixes.

Part IV, "Usage," has a short introductory note and then a lengthy (95 pages) listing of troublesome usages. An interesting feature is that Garner uses Google ngrams, graphs showing occurrences of usage based on Google's corpora of about every book published between 1500 and 2008. He also includes a section on bias-free language. His comments on usage could also serve as the book's purpose: "What is intended here is a guide that steers writers and editors toward the unimpeachable uses of language…" (p. 224).

Finally, Part V covers the usual "Punctuation" marks.

The back matter includes a number of sections. Besides the many extended definitions found throughout, Garner includes an 88-page Select Glossary as well as two bibliographies, two indexes, and a pronunciation guide.

Garner's *The Chicago Guide to Grammar, Usage, and Punctuation* will have several uses for technical communicators. The most obvious use would be for those who edit text. Other uses would include as a reference when composing and evaluating texts. A grammar companion such as this one to *CMS* and an authoritative dictionary would establish language authority across company texts. Therefore, this work is highly recommended.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

The Ultimate Freelancer's Guidebook: Learn How to Land the Best Jobs, Build Your Brand, and Be Your Own Boss

Yuwanda Black. 2016. Avon, MA: Adams Publishing. [ISBN 978-1-4405-9678-0. 272 pages, including index. US$16.99 (softcover).]

Black had in mind an audience of young freelancers when she wrote *The Ultimate Freelancer's Guidebook: Learn How to Land the Best Jobs, Build Your Brand, and Be Your Own Boss*. Her audience should get valuable information as the book adequately covers the freelancer audience.

Practical issues such as pros and cons of incorporation, legal advice, traditional business

plans, retirement, and budgets are some of the topics, as are freelance success stories. How to land your first clients and build a brand are topics Black covers in some depth as you would expect for the audience. She also notes that freelancing is now a big market and growing.

With a home base in Kingston, Jamaica, Black has been featured in publications such as the *Chicago Tribune*, *Savoy Professional*, and *Wall Street Journal*'s RealEstateJournal.com. Her site at http://inkwelleditorial.com gives readers tips on writing and where to find work. She owns Inkwell Editorial – an online information portal for editorial professionals and a site for information on the business of freelance writing.
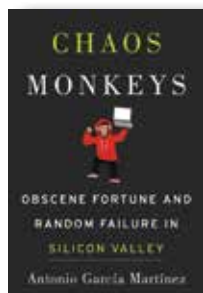
The Ultimate Freelancer's Guidebook tackles a subject somewhat outside of the traditional technical writing domain, covering more a freelancer perspective. I saw, for example, a remarkably negative review of this book and its author, yet others gave the book a top review. I suppose I could think this is all in a day's work for a freelancer. Emotions can run high and the public can see an airing of grievances in the public domain.

Jeanette Evans

Jeanette Evans holds an MS in technical communication management from Mercer University and published in Intercom articles including "What We Can Learn from Project Managers" and a column on emerging technologies in education. She achieved the rank of Associate Fellow and participates in the NEO STC community, currently serving on the newsletter committee and last presenting at an NEO STC meeting on the topic of emerging technologies

Chaos Monkeys: Obscene Fortune and Random Failure in Silicon Valley

Imagine monkeys running through a computer center flicking switches and pulling out plugs at random, and in general causing as much chaos as possible. Software developers run the software equivalent of chaos monkeys to test their code and find the weaknesses in their systems.

In this insightful and witty book, Martínez suggests that internet entrepreneurs—with their drive to innovate and disrupt—are society's chaos monkeys, breaking things at random, bringing benefits, but also threatening whole industries, and the jobs that go with them: think Amazon and bookstores; Uber and taxicabs; Airbnb and hotels and a city's rental stock. With more candor than many industry insiders, Martínez permits himself to wonder whether society can survive the disruption.

But considering broad social implications is to get ahead of the story. The main thrust of *Chaos Monkeys: Obscene Fortune and Random Failure in Silicon Valley* is to show that living by the doctrine "move fast and break things" (p. 257) makes life an unpredictable, high-risk game for the monkeys too.

Based on notes and archived emails, Martínez attempts to paint as accurate a picture as possible of what he experienced during the years (2007–2014) he spent living in the economy's fast lanes.

Briefly, Martínez dropped out of a PhD in physics to work as a strategist for Goldman Sachs. He soon left for Silicon Valley, worked for one startup, then founded another and shepherded it to acquisition. Joining Facebook, he lived through an IPO, and as product manager, developed a real-time ads exchange, all while also trying to balance relationships and have a life. (I don't want to spoil a fantastic story, so if you want the details, read the book.)

An excellent writer with a wicked wit, Martínez shares his observations and adventures, some of them funny—brewing beer at Facebook and accidently flooding CEO Mark Zuckerberg's desk—others insightful and instructive. Martínez is a keen observer who has seen and understood much. Where needed, he provides clear explanations of any technical, legal, or procedural matters—the complexities of incubating a startup, the rituals involved in securing venture capital—needed to understand the story. He offers informed, often scathing, opinions on such things as the "indentured servitude" of the H-1B visa program, and the financial and social dynamics of stock-based compensation and IPOs, as well as explaining the economics of leveraging user data, advertising-financed "free" services, the workings of ad buying auctions, and much more. Martínez is also free with his opinions of the high-tech corporate environment, and of the menagerie of out-sized egos and personalities that make up Silicon Valley culture.
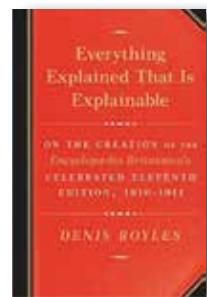
If you need to better understand the often secretive workings of a segment of the economy that—for better or worse—is remaking our world, or just want to vicariously enjoy the high-octane experience of going along for the ride, *Chaos Monkeys* is an engrossing read.

Patrick Lufkin

Patrick Lufkin is an STC Fellow with experience in computer documentation, newsletter production, and public relations. He reads widely in science, history, and current affairs, as well as on writing and editing. He chairs the Gordon Scholarship for technical communication and co-chairs the Northern California technical communication competition.

Everything Explained That Is Explainable: On the Creation of the *Encyclopædia Britannica's* Celebrated Eleventh Edition, 1910-1911

Denis Boyles. 2016. New York, NY: Alfred A. Knopf. [ISBN 978-0-307-26917-1. 444 pages, including indexes. US$30.00.]

Why should technical communicators want to read about a 1910–1911 encyclopedia? One reason is that when you compare the 11th edition of the *Encyclopædia Britannica* with the 9th, you see a dramatic change in assumed reader. Also, the staff worked with large amounts of text and authors (over 40,000 entries written by over 1,500 men and 200 women), not to mention production problems—all technical communication concerns.

Denis Boyle's discussion in *Everything Explained That Is Explainable: On the Creation of the Encyclopædia Britannica's Celebrated Eleventh Edition, 1910–1911* falls into three parts. The first, pre-11th, discusses the 9th and 10th editions. The second examines the 11th itself. The third covers post-11th.

The pre-11th focuses on what to do with left over copies of the 9th. The major problem was that the volumes were issued as completed, so that when they published the last volume (1860) it was almost 20 years out of date. The answer was to issue supplemental volumes that quickly turned into the 10th edition.

This part also discusses a new field, advertising. How do you sell an out-of-date reference work? *The* [London] *Times* agreed to offer it under what was then the radical plan of a down payment and installment payments. For *The Times* this approach added needed revenue as other publishers bought book advertisements.

Boyles then moves into the mechanics of producing a new encyclopedia. The central issue was whether to publish all volumes at once, or follow the 9th and publish each volume as it was completed. All at once won out. This issue was only one of several confronting the 11th. Lawsuits over partnerships and ownerships, severing the *The Times* connection, and establishing a relationship with Cambridge University Press occupied the non-editorial staff.

The third covers the reception of the 11th. Early reviews were favorable, but reviews written by subject experts and published in scholarly journals were contentious. To modern sensibilities, the 11th and previous editions offer significant problems. For example, early 20th century opinions of nonwhite races were decidedly racist and based not solely on emotion but also "science." Scientists, including Darwin, agreed on the inferiority of the non-white races.

Boyles covers much more in detail, and you begin to wonder what is so great about the 11th. One answer is that it was actually published and a second was how the new approach to advertising made it great and worthy of the history. You can also argue that the editorial work of Hugh Chisholm made it special.

We finally get to Boyle's answer in the "Postscript" where he argues that the 11th is more "plausible, reasonable, unruffled, often reserved, and completely authoritative" (p. 332) than encyclopedias prior to and after the 11th. Further, "those with a taste for the wry can easily read it as an experimental fiction about a place that really existed, once" (p. 332). Even with all that, Boyles is an enjoyable read.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

The User's Journey: Storymapping Products That People Love

Donna Lichaw. 2016. Brooklyn, NY: Rosenfeld Media. [ISBN 978-1-933820-31-6. 146 pages, including index. US$39.00 (softcover).]

We learned early that a good way to prepare a communication is to divide it into parts. First, in elementary school, we struggled to learn about outlining: Divide your subject and then the parts, each level with its own designation—usually "I" and "A," etc. Once we mastered this process with content, we moved to dividing creating the communication into parts.

Later still, we learned that both content and process can be viewed as an organized approach. Beginning with Aristotle's definition of a story in his *Poetics* (Lichaw brings Aristotle and his view of "story" into the discussion), through more modern uses of analyzing communications such as Kenneth Burke's dramatic pentad and Robert Horn's Information Mapping, communicators have recognized the value of dividing both process and content into parts. We then discovered that instead of an outline written out, we can create visuals of the different parts. Storyboarding helped us organize and check for completeness.

Donna Lichaw's *The User's Journey: Storymapping Products That People Love* builds on this history to emphasize that each part along the way is best seen as a story that she asserts is "a framework and a lens with which humans comprehend everything" (p. 4).

She presents three kinds of stories: a Concept story that is a fundamental story and structure that you will use to identify and communicate your core concept…, Origin story that details how someone does something for the first time, and Usage story "… the story of someone using your product or service—step by step" (p. 70). She further identifies seven elements to use for creating and analyzing each main story: exposition, inciting incident/problem, rising action, crisis, climax/resolution, falling action, and end.

Each of Lichaw's story chapters contains not just visuals, but examples applying the principles explained in the chapter. In addition, beginning with Chapter 4, she includes case studies. One of them about a fictitious company called FitCounter, she carries through

chapters 3, 4, and 5. This case study is in addition to her other examples.

Chapters 6 to 8, then, explain how to use storymapping. Chapter 6 addresses the source of material that will create the storymapping including both qualitative and quantitative data that you then use to create the main stories. Chapter 7 offers advice on "mapping concepts and flows onto a narrative arc…" (p. 116) that you create when applying the seven elements. Finally, Chapter 8 brings together all the previous techniques and offers advice on making your product or service attractive to users.
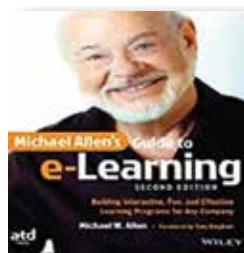
Whether or not storymapping is a process suited to your situation depends on how you want to approach creating the communication, both process and content. Perhaps your product or service does not lend itself to this approach, although Lichaw argues that any situation, any product or service can best be seen as a story.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

Michael Allen's Guide to e-Learning: Building Interactive, Fun, and Effective Learning Programs for Any Company

Michael W. Allen. 2016. 2nd ed. Hoboken, NJ. John Wiley & Sons, Ltd. [ISBN 978-11190-4632-5. 432 pages, including index. US$40.00 (soft cover).]

It is obvious why Allen's text went into a second edition: it models the practices and understanding that the reader develops as they work through the text. The text's goals, purpose, and applicability are explicit from the start; content is clearly organized, ranging from book sections down to bold headings and well-chunked paragraphs; multiple illustrations support and enhance learning. Equally important, unlike many texts—academic and

industry—*Michael Allen's Guide to e-Learning: Building Interactive, Fun, and Effective Learning Programs for Any Company* has decently sized type throughout: table of content, titles, headings, and paragraphs. This attention to detail makes reading easier and more pleasurable while supporting old fashioned search and findability.

The index is robust, but the additional resources are a bit lacking given Allen's history and expertise. Emphasis on the business side of e-learning, as opposed to higher education and will require translation at some points for educators. Most notable, though, for teachers is that many schools do not have the trained staff, resources, and/or e-learning software to make Allen's examples happen. Nor do we have the time to do all this work, or all the steps, ourselves. Allen's guide is not a do-it-yourself kit; it assumes that if you are designing content and curriculum that you have healthy or robust resources and other trained personnel with whom to work and obtain support. Reviewing the sections on interactivity, motivation, and serious learning games makes this clear.

For programs, trainers, or faculty teaching instructional design (ID), Allen offers several important points. Most notably, his Successive Approximation Model (SAM). Given how often he references his own model and its importance in the text, they should have put the model earlier than page 297. Emphases on practical, quick, and getting things done prioritize deliverables, all with a stripped-down model. Similarly, if learners have not worked in industry, this text can help students get a different sense of the scope of team work, collaboration, resources, and planning that happen at a larger scale. Allen's work is a strong complement to any reference library, especially if struggling or caught on a problem. While rhetorical questions in texts are usually irksome, Allen's use is not only tolerable but effective in most cases.

Several clear audiences for this book: ID newbies; ID courses; ID professionals wanting to improve their professional development. While many ideas herein will be familiar, Allen presents an excellent and reliable net to catch you if you fall off the high wire. Allen's *Guide to e-Learning* presents an accessible, friendly, and holistic orientation or reminder of how to engage and motivate learners using multiple techniques, strategies, and approaches. In terms of teaching, learning, usability, and clarity, this is one of the best books on instructional design I have seen in the past five years.

Gregory Zobel

Gregory Zobel is an Assistant Professor of Educational Technology at Western Oregon University.

Draplin Design Co.: Pretty Much Everything

Aaron James Draplin. 2016. New York, NY: Harry N. Abrams. [ISBN 978-1-4197-2017-8. 256 pages. US$40.00.]

Draplin is the owner and founder of Draplin Design Co., a nationally known freelance design business, and creator of Field Notes, a popular brand of pocket notebooks. Draplin has gained recognition lately as a public speaker and has been engaged at a range of country-wide events. And now he has authored his first book, *Draplin Design Co.: Pretty Much Everything.* This book is essentially a collection of design stories and an autobiography of a designer who has made a name for himself despite his humble beginnings.

Draplin is an excellent storyteller, anyone who has seen him talk can attest to this. This holds true in his writing; his approach is entertaining and easy to read. Those who have had the opportunity to see him speak will know that he doesn't hold back, including his use of profanity, and this book is no exception. However, it did not seem to be overdone or unnecessary, each use emphasizes a point. The book's tone is unpretentious, easygoing, and unapologetic (yet he apologizes sincerely when necessary) and he even addresses the idea that some say he brings a blue-collar approach to design; in his own words, he unequivocally states that design is a white-collar profession.

The overarching theme for *Draplin Design Co.* is passion and hard work; Draplin is clearly passionate about being a graphics designer, it shows in the stories he shares about solving design problems and about helping friends through design. This passion is inspiring and his stories exemplify that hard work has been the key to his success. He shares several stories illustrating how hard work and determination have helped him along his path.

The book is also a collection of artifacts and helpful tips besides the stories about his life and designs. The

artifacts range from work Draplin did in school and in his early career, examples of his design process, and major projects in his current portfolio, such as Field Notes and designs he did for the government under the United States President Obama. This collection also contains items of design ephemera that he has collected over the years. It is easy to see how these designs, often lost tidbits now found, from design history have informed his design aesthetic. Draplin also provides insight into his process and information that would be beneficial to new designers, such as the "File Handoff Checklist" (p. 242).
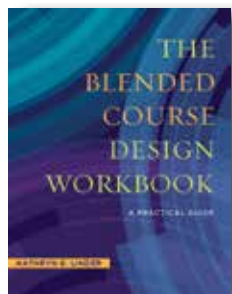
Draplin Design Co. is a unique presentation of the designer's life, education, and business. It will be a great resource for young designers or anyone who is looking for inspiration and a refreshing perspective on the design industry. He includes numerous examples of work, process and inspirational artifacts in along with his text, laid out in a beautiful, yet functional manner. Aaron Draplin has led a life full of experiences, which he shares in his book *Draplin Design Co. Pretty Much Everything,* design advice that anyone can use.

Amanda Horton
Amanda Horton holds an MFA in Design and currently teaches graduate and undergraduate courses at the University of Central Oklahoma in the areas of design technology, design studio and history of graphic design. She serves as a book reviewer for *Technical Communication.*

The Blended Course Design Workbook: A Practical Guide

Kathryn E. Linder. 2017. Sterling, VA: Stylus Publishing LLC. [ISBN 978-1-62036-436-9. 224 pages, including index. US$30.00 (softcover).]

The Blended Course Design Workbook: A Practical Guide is a very useful guide for instructors transitioning from traditional to blended delivery. Linder explains how to write course goals and objectives, how to assess students online, and how to design effective learning activities. She also explains how to use technology to support learning,

how to access suitable online resources, how to organize blended courses, and how to support online learners. Fortunately, each chapter comprises a similar structure: what do we know about…?; a step-by-step guide to…; key ideas; questions for faculty to ask at their own institution; questions for administrators; and a checklist to document the course design progress.

There are many definitions of blended learning, but the consensus is that a blended environment comprises both face-to-face and online components. Ideally, for a blended environment to be effective, the instructor should purposely align these components, technology should support learning objectives, and active learning methodologies should be employed.

Linder proposes a backward course design approach. In other words, instructors should focus primarily on the intended learning outcomes and then design activities and assessments to enable those outcomes. She cautions against always adopting blended versions of traditional activities and assessments; sometimes alternative options facilitate better outcomes.

In an active learning environment, instructors can use a combination of direct instruction and guided inquiry techniques. Students can engage in different kinds of group work, each with different defining features and learning objectives. Instructors can easily integrate metacognitive activities into blended courses. A flipped classroom, whereby the active learning takes place during face-to-face time, rather than out-of-class, may suit some course topics.

To maximize opportunities for student success, the blended instructor should use a constructive alignment mapping process by aligning course objectives with both face-to-face and online learning activities and assessments. The instructor can share some or all this information with students in a syllabus.

Linder recommends experimenting with only a few tools at a time until students become familiar with them and the instructor can evaluate their effectiveness. She offers recommendations for how best to organize the course content within a learning management system.

The Blended Course Design Workbook offers recommendations on how to prepare students for success. For example, instructors could send a welcome announcement via e-mail, post a welcome video online, and engage with students through a variety of media.

The final chapter in *The Blended Course Design Workbook* comprises a detailed blended course implementation checklist, which instructors can use to check the alignment of goals, objectives, activities, and assessments.

I find the step-by-step guides, templates, and checklists to be very useful, particularly as they build on one another. In addition, Linder's references to theories and principles at the start of each chapter give instructors a sound footing on which to design their blended courses. The book's tone is encouraging, which makes for an easy read.

Darina M. Slattery

Darina M. Slattery has more than 15 years' experience teaching technical communication and e-learning. She serves as a reviewer for the *British Journal of Educational Technology*, *IEEE Transactions on Professional Communication*, *Computers and Composition*, and *Communication Design Quarterly*. In 2016, Darina published her co-authored handbook, *Virtual Teams in Higher Education: A Handbook for Students and Teachers.*

The New Web Typography: Create a Visual Hierarchy with Responsive Web Design

Stephen Boss and Jason Cranford Teague. 2017. Boca Raton, FL: CRC Press. [ISBN 978-1-138-78139-9. 244 pages, including index. US$39.95 (softcover).]

If you're interested in typography and appreciate a dash of CSS, *The New Web Typography: Create a Visual Hierarchy with Responsive Web Design* may be the book for you. This book takes a unique approach by comingling topics on typographic design principles and topics on Web font technology. Whereas other books tend to separate the two, the *The New Web Typography* blends them. This makes this book an ideal resource for students who are new to typography and whose primary medium will be Web sites, mobile apps, and content management systems.

Boss and Cranford Teague offer solid advice for choosing typefaces that goes beyond the usual suggestions of considering x-height; they discuss investigating the font's repertoire to ensure it contains the characters you need now (and in the future), considering the fonts, weights, and styles, understanding legal issues with fonts, and considering such accessibility issues as dyslexia. The authors outline the advantages and disadvantages of various Web font service bureaus, which should save a new Web typographer valuable time and research.

This is not your average typography book. Typography books usually include the names of typefaces pictured as examples. Sadly, this book didn't adhere to that convention as I found myself wondering, "What font is that?"

In many ways, *The New Web Typography* feels like a compilation of old blog posts or presentation notes, hastily repurposed for a book. The underlying principles are still relevant, but the voice is inconsistent and some details are dated.

If we look at the voice, the authors bounce between first-person singular and plural—referring to "I" on one page and "we" on the next. Since the authors don't distinguish who is writing each paragraph, it's impossible to know who "I" is.

The volume's elegant visual tone is undermined by inconsistent typefaces, type sizes, and captioning in the sidebar throughout the book, and stretched and poorly cropped images in chapter 3. Examples of CSS display a variety of spacing and indentations.

Finally, some of the references to technology seem dated. *The New Web Typography* offers several references to Internet Explorer 6, but no mention of Internet Explorer 10 or 11, or the Microsoft Edge browser. According to Wikipedia, worldwide usage of Internet Explorer 6 fell below 1% in March 2015, so one wonders when the content for this book was written. The references to Adobe Fireworks, which was left behind when Adobe transitioned from CS6 to Creative Cloud in 2013, also seem out of place.

Designing a book that will be picked up by designers and ensuring technology references are up to date is hard work, and Boss and Cranford Teague superbly marry the two topics. However, these examples of inattention to detail are distracting and begin to erode the credibility of a book that otherwise offers excellent advice, is easy to read and navigate, and goes far beyond your traditional books on type.

Michael Opsteegh
Michael Opsteegh is an STC Senior Member and a technical writer in the software and financial services industries since 2004. He is a lecturer in the technical communication program at Cal State Long Beach. Michael holds a master's degree in English and is a Certified Technical Professional Communicator (CPTC).

The Origins of Ethical Failures: Lessons for Leaders

Dennis Gentilin. 2016. New York, NY: Routledge. [ISBN 978-1-138-69051-6. 174 pages, including index. US44.95 (softcover).]

Gentilin's *The Origins of Ethical Failures: Lessons for Leaders* makes a powerful and necessary contribution to the question of ethical behavior in organizations. Whereas most books on ethics approach the topic from a set of moral norms prescribed by a particular philosophical perspective, using case studies or hypothetical examples to illustrate their argument, Gentilin writes from his personal experience with ethical failure as a trader currency scandal at the National Australia Bank (NAB). He writes both as a theorist and "as a practitioner, in the truest sense of the word" (p. 4).

The academic study of ethics becomes truly meaningful only when its principles are tested in concrete situations with real consequences for the individual. Gentilin's unrelenting focus on this fact gives his argument an immediacy and credibility very hard to dismiss.

Gentilin's account is not simply a description of his own experiences, however. Rather, he integrates his personal journey within a framework of psychological theory and experiment characterized by four major influences on ethical behavior in organizations, all present to some degree in every situation. External influences are "contextual," with the organizational culture the "most significant driver of unethical behavior"; and "relational," with local peer groups exerting inordinate pressures to conform. Internal influences are "personal," with our moral compass distorted by the drive for money and power and the fear of failure; and involve "blindness," our propensity

to avoid responsibility by rationalizing our behavior (pp. 7–8). Learning to recognize these factors as they happen helps us recognize and manage challenges to our moral compass.

In each category, Gentilin cites numerous, pivotal studies in psychology in support of his observations, including experiments by Milgram and Zimbardo (obedience), Ariely (monetary incentives), Kahneman (slow and fast thinking), Flood (the Prisoner's Dilemma); philosophical arguments by Adam Smith (self-interest), Sophocles (know thyself); and historical examples and business cases (the My Lai massacre, the NAB and Pinto scandals). In each case, Gentilin connects his personal experience to the scholarly content and vice-versa, simultaneously universalizing and particularizing the ethical dilemmas he describes, thereby modeling the behavior he recommends.

To his credit, Gentilin refuses to reduce his argument to bumper-sticker platitudes, insisting instead that for individuals only mindfulness—paying conscious attention to how we respond when our moral beliefs are tested—allows us to understand, evaluate, and shape our own behavior. He considers leaders the key to creating ethical organizations, but again only insofar as they act in keeping with the moral behavior they promote.

Gentilin's argument recalls John Milton's comment that one "cannot praise a fugitive and cloistered virtue…that never sallies out and sees her adversary." Like Milton, Gentilin believes cloistered virtue is not virtue, and that ethics matter less when theorized than when tested by reality. Gentilin has written an excellent and timely book—one that should be read and lived by individuals and leaders alike.

Donald R. Riccomini
Donald R. Riccomini is an STC member and a senior lecturer in English at Santa Clara University, where he specializes in teaching engineering and technical communications. He previously spent twenty-three years in high technology as a technical writer, engineer, and manager in semiconductors, instrumentation, and server development.

Written English: A Guide for Electrical and Electronic Students and Engineers

Written English: A Guide for Electrical and Electronic Students and Engineers was a pleasant surprise. Judging from the cover title, I expected yet another dry compilation of guidelines: needful information, but not the most enjoyable experience; far from it. The book comes in a handy size, contains plenty of helpful and real-world examples, and its lively annotations and formatting styles make it excellent reading.

Hart states, "Errors made in papers authorized by writers whose first language is not English are often easily fixed. The issue is one of awareness – and this can be achieved by identifying the mistakes and then providing instruction on how to correct them" (p. xii). The book is definitely successful in doing just this.

Hart provides grammar and background information, but in a condensed, digestible way. What makes this book valuable is the examples. According to Hart, all the examples are "mistakes that have actually been made" (p. xiii).

Written English is divided into two main parts: The first part contains more than 20 sections on key areas of grammar, writing style and formatting. Each section gives basic theory information and lots of practical advice. Hart is not afraid to use different formatting and text elements to the extreme: lists of example errors, Q&A boxes, USE and AVOID tables, "Take care" boxes, common confusions, golden rules, comparing "wrong to right" sentences, arrows pointing from incorrect words in a sentence to the related explanation in a box. This makes the book fun to read and engages you in a pleasant conversation.

The second part is an A-Z list of errors, with terms most commonly misused by writers. The index is perhaps not as comprehensive as you would expect and contains single level entries.

With this mixture of theory, examples and solutions, you can use the book as a general reader from beginning to end or as a reference work. For example, while the "Verbals" section deals among other things with "dangling modifiers", a challenge familiar to technical writing, the "Equations" section devotes a subsection to the equals sign, which I have so far not given much thought: "In mathematics, the equals sign (=) is considered a verb and is the fundamental part of an equation. Without an equals sign the information cannot be referred to as an equation. It is an expression instead" (p. 134)

Written English is addressed to professors, lecturers, research officers, graduate students, and industry workers. I recommend it unconditionally to those in the technical writing and engineering fields. (Remember that "engineering reports present great potential for technical writers", as explained in "Un-Heavy Reading: How to Add Value to Engineering Reports" by Robert P. Harrison, *Intercom,* January 2017.) Consider buying this slim, precious book as you don't want to miss it on your shelf of writing resources. It has definitely found a place on mine.

Karina Lehrner-Mayer
Karina Lehrner-Mayer is a Senior STC Member, holds a degree in translation and has over 15 years' experience in Technical Communication. She works as a Technical Writer at ISIS Papyrus Europe AG, an Austrian-based company offering solutions for inbound and outbound business communications.

But Can I Start a Sentence with "But"? Advice from the Chicago Style Q&A

Are you a word maniac, a grammar addict, a vivid follower of guidelines presented by the Big Orange? Then *But Can I Start a Sentence with "But? Advice from the Chicago Style Q&A* is just the book for you. The slim volume is a "Best of" from the archive of the *Chicago Manual of Style Q&A* (CMOS) Web site. Everything that is contained in the book has been published online, most of it chosen because it shows what makes the conversations on the *CMOS Q&A* Web site so special: questioners who have unbelievably

detailed, serious queries about grammar and style—and CMOS editors whose answers sometimes cannot hide how amazed they are about the seriousness of the question, as style is often a matter of judgment—what is correct in one situation is inappropriate in another.

In the book, questions and answers are grouped into categories such as "Three people have three strong opinions about commas…which includes sections on commas, hyphens, vertical lists, and so on. You can also use the index to look up an entry, but I would not see myself using *But Can I Start a Sentence with "But"?* as a reference.

Very often questioners are looking for a clear decision based on *CMOS* rules. And very often, the answer they receive is a reply such as the following: "There's usually no 'correct' winner; it's a judgment call" (p. 8). Sometimes, questioners are quite desperate and need to be calmed. When a questioner ends their question about hyphenation with the call for help "What's a diligent hyphenator to do?", the answer starts with "The hyphenator needs to chill" (p. 36).

Similarly, another answer appeals to the questioner's common sense, perhaps also showing that patience is wearing thin on the editor's side (p. 42):

Q. Is there a period after an abbreviation of a country if it is terminating a sentence? "I went to the U.K.."

A. Seriously, have you ever seen two periods in a row like that in print? If we told you to put two periods, would you do it? Would you set your hair on fire if *CMOS* said you should?
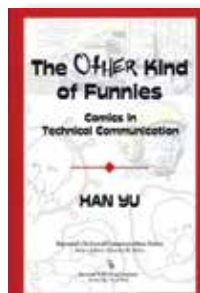
In the Foreward, Q&A Editor Carol Fisher Saller writes, "…over the years, the Q&A has developed a … voice" (p. xi). This voice is unique, respectful, sometimes tongue-in-cheek, and the reason why this book is fun to read.

Karina Lehrner-Mayer
Karina Lehrner-Mayer is a Senior STC member, holds a degree in translation and has over 15 years' experience in Technical Communication. She works as a Technical Writer at ISIS Papyrus Europe AG, an Austrian-based company offering solutions for inbound and outbound business communications.

The Other Kind of Funnies: Comics in Technical Communication

In 1956, *Popular Science* magazine introduced a feature that ran monthly until1991 when it switched to *The Family Handyman*. Roy Doty created and drew "The Wordless Workshop," presenting a family faced with small, nagging household problems such as storing cleaning supplies, arranging spices, and sorting laundry. As the title suggests, the solutions were presented only through pictures with occasional numbers. While not the first such comic that explained how to build something, it was highly popular and was eventually published in book form (1996). Yu's *The Other Kind of Funnies: Comics in Technical Communication* examines in detail such uses for comics when presenting technical subjects.

In nine chapters that fall roughly into three parts, she traces comics' development past and present. While the U.S. does not use many such formats, other countries do. She examines comics in Japan, Belgium/France, Africa, Asia, and Latin America. The first four chapters establish the history of comics and, then, beginning with Chapter 5, Yu describes specific genres of comics. The third section is an overall conclusion and looking ahead. Students and teachers, the primary audience, should find the first section useful as starters for research and projects. Practitioners might find the middle section interesting.

Each genre chapter follows a pattern: An introduction to the genre, types of the genre, and techniques used in the genre (but not how-to-do comics in that genre). The genres that Yu covers in the second part are instructional comics (Chapter 5), developmental comics (6), educational comics (7), and propaganda comics (8). In instructional comics, she looks at comics for military and civilian use: product manuals, safety guidelines, and training documents among others. Developmental comics include communications related to human development: health, gender inequality, poverty, diversity, and the environment. Educational comics convey teaching,

learning, and knowledge dissemination. Propaganda comics attempt to influence the audience's thinking.

Technical communicators would probably find the book difficult reading because of the scholarly apparatus and be looking for how to use comics effectively. Unfortunately, Yu comes up short on the "how-to-use." *The Other Kind of Funnies* would make an excellent book for a seminar in genres because of its coverage and the opportunities for further research. Yu uses many earlier comics, both on their own and in applications such as technical communication, but a large percentage of her references are quite old, some from the 1950s.

The idea of using comics in technical communication is an interesting approach—as are all such that increase the transfer of information from those who have it to those who need it. Like all innovations not fully formed, it needs more research, especially current research. Therefore, students and faculty should find plenty in this book to start them toward doing such research.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

Book Cover Designs

Matthew Goodman. 2016. Atglen, PA: Schiffer Publishing, Ltd. [ISBN 978-0-7643-5016-0. 224 pages. US$34.99 (softcover).]

Every successful book cover design begins with serious research. The graphic artist must first be familiar with the latest trends in the book publishing industry, the preferences of the individual publishing house, and the book's genre. This information can help the designer hone in on appropriate cover designs. But the content of the book and the author's unique perspective, as interpreted by the designer, is what will give birth to a memorable cover.

Goodman has featured over fifty book cover designers in his oversized (8.5 by 11 inch) paperback printed on glossy paper. He allots several pages to each contributing graphic artist, starting with a photo, brief biography, and credentials. This first section is followed by the designer's explanation of the approach he or she took to get creative juices flowing and find inspiration; also, what speaks to the artist indicating a final design.

Several pages follow which display actual front covers credited to the designer. These are six to eight book cover images, reduced to half-size and printed in full color. To maintain balance, the book occasionally includes a full-sized image.

The majority of covers showcased are for trade books—novels, mysteries, and classic tales—whose authors like Truman Capote and Patrick Flanery are easily recognized. Trends in these genres lean toward highly graphic designs…swirls and lines, layered artwork, and fonts that become the graphics themselves. A cover today may remind one of superhero fight scenes straight from a comic book.

Stock photos preferred by amateurs—authors or designers—are clearly passé. Even biographies sport a stylized image. It might be the celebrity's name rotated 90 degrees over his image or a cut-out photograph of a singing group positioned along the side edge and laid over a darker background.

Technical communicators will be pleased at the sampling of covers for non-fiction works including cookbooks, biographies, and reference guides. Titles have moved to UPPERCASE…seldom Title Case. They are often separated from the subtitle by using linear objects, likes forks, as ruling lines. Many of the techniques shown can easily be duplicated in house with Photoshop. Or if your company wishes to hire one of these talented professionals, contact information is included at the end of the book. An index of book titles and authors would have been helpful.

Studying new techniques and applying latest trends to your company white papers and blog posts could do much to improve readership. Simply replacing a tired manual front cover might inspire a corporate-wide branding revamp. And who knows what revenue increases may result by switching to a splashy image that attracts a younger generation of customers.

Donna Ford

Donna Ford has been an STC member, joining in 1990 and serving on her local chapter's board for many years. She has been a technical writer since 1987 in the hardware, software,

and government healthcare industries. Donna holds a certificate in Information Design from Bentley College. She also reviews books online for the US Review of Books.

How to Write and Publish a Scientific Paper

Barbara Gastel and Robert A. Day. 2016. 8th ed. Santa Barbara, CA: Greenwood. [ISBN 978-1-4408-4262-7. 327 pages, including index. US$61.00.]

Any book that reaches an 8th edition and is not a textbook must be doing something right. Since 1979, *How to Write and Publish a Scientific Paper* has helped authors publish scientific papers. Originally targeted to graduate students in microbiology, subsequent editions broadened the scope to biology and chemistry, but students in the social sciences and computer sciences also benefit.

Part I presents in six chapters a scientific writing overview. Beginning with Part II and chapter 7, Gastel and Day presents how authors should produce the scientific paper. They present in individual chapters different parts such as the title (chapter 7), author's list (8), abstract (9), and so forth through citing references (15). Part III discusses tables, graphs, and photographs. The fourth part addresses the second part of the title, how to publish the paper and what happens at the journal when you send your paper for consideration. Both authors are or have been journal editors.

Part V presents other forms associated with publication such as the review paper and writing for the public. Conference papers and posters are important and receive a separate part (VI). Part VII addresses style based on traditional grammar. Finally, Part VIII addresses additional forms such as grant proposals and writing peer reviews. The book concludes with four appendixes, a glossary, references the authors use, and the index.

One surprising element—and I wonder how many other reviewers mentioned this and why the authors did not follow up on it (see, for example, *Technical Communication*, vol. 54, number 2, p. 248)—is the claim that the book's popularity is also due to the jokes and the cartoons. Because the authors target not only native speakers of American English, but also

international English for second language speakers, you have to wonder why these jokes are in the book. For example, in a discussion of jargon, we find this sentence: "The jargonist really gets his jollies…" (p. 211). What is a second language speaker to make of this? Another example that has been in all editions since the first is a list labeled "The Ten Commandments of Good Writing" (p. 197) and then lists 10 examples of what not to do. The authors do not explain that these examples are ironic. If the authors are working on a 9th edition and will not delete these dubious jokes, then they should be set off to the side perhaps boxed and shaded and certainly explained.

What about technical communicators? Two matters make the book valuable. First, if colleagues ask for help in writing their scientific papers, technical communicators can point to this book as giving good advice, but with a strong caution about the jokes. The second is to enhance the technical communicator's knowledge of what is scientific writing. In sum, *How to Write and Publish a Scientific Paper* has merit for technical communicators and should at least be found in a company or reference library.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

Virtual Teams in Higher Education: A Handbook for Students and Teachers

Madelyn Flammia, Yvonne Cleary, and Darina M. Slattery. 2016. Charlotte, NC: Information Age Publishing, Inc. [ISBN 978-1-6812-3262-1. 212 pages, including index. US$45.99 (softcover).]

Teaching technical writing focuses on what communication skills students will need in the workplace. When business, industry, and government take advantage of new technology, technical communication academics need to prepare the students for such situations. Flammia et al.'s *Visual*

Teams in Higher Education: A Handbook for Students and Teachers provides some answers as well as resources to help both students and teachers develop and participate in such teams.

Flammia et al. offer guidance to students participating in virtual team projects because multinational corporations, small businesses, and nonprofit organizations use virtual structures with increasing frequency. These *virtual teams* are "workgroups composed of members who rely on computer-mediated communication to accomplish their goals" (p. 4).

The authors divide their book into three major parts: Part I sets the context for virtual teams and introduces the topic; Part II lists the challenges facing students and teachers in establishing virtual teams; and Part III offers guidelines. Two appendixes provide a case study and a listing of different resources.

Flammia et al. identify four groups of challenges that virtual teams will face: communication (discussed in Chapter 3), technological (4), management (5), and cultural (6). Each chapter provides extensive discussions of the literature available from both nonacademic and academic research. The authors argue that because there is little research on academic virtual teams, they review nonacademic virtual team literature and apply it to academic situations.

The overall challenge faced by students and teachers is the radical shift from face-to-face classroom experiences to virtual experiences involving students from different schools. In this particular case, the schools are located in the United States, Ireland, and France. The case study presents the results of the virtual team exercise in which students in the United States and Ireland produce a simple set of instructions and then French students translate and localize them. Topics selected were setting up a Facebook account or email account, among others. The major academic advantage of virtual teams is working with others at diverse locations.

The emphasis on the research available for both nonacademic and academic virtual teams means that *Visual Teams in Higher Education* works well as an introduction or overview for setting up, running, and ending academic virtual teams. However, when you look into Parts II and III, which are the heart of the approach, you find few how-to-do-it suggestions. For example, in chapter 5 on management challenges, we read that team leaders are responsible for establishing a positive learning environment, but find nothing to suggest how that is done. Even the case study in Appendix 1 offers little in the way of nuts-and-bolts activities. I would also urge that the authors look at Project Management Institute materials.

As an introduction to academic virtual teams as well as providing necessary background, *Visual Teams in Higher Education* succeeds, but the subtitle is misleading because both students and faculty need additional information.

Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

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Lyn Gattis, Editor

The following articles on technical communication have appeared recently in other journals. The abstracts are prepared by volunteer journal monitors. If you would like to contribute, contact Lyn Gattis at LynGattis@ MissouriState.edu.

"Recent & Relevant" does not supply copies of cited articles. However, most publishers supply reprints, tear sheets, or copies at nominal cost. Lists of publishers' addresses, covering nearly all the articles we have cited, appear in *Ulrich's international periodicals directory*.

Collaboration

Analyzing information in complex collaborative tasks

Zaad, L., Lenior, D., van der Geest, T., & van der Pool, E. (2017). *Communication Design Quarterly, 5*(1), 26–42. doi: 10.1145/3090152.3090155

"In this article, [the authors] present a method for analyzing the communication of people who exchange dynamic and complex information to come to a shared understanding of situations and of the actions planned and monitored by one party, but executed remotely by another. To examine this situation, [the authors] analyzed dispatchers working in police dispatch center in a large city in the Netherlands and their communication behavior in three different settings. The results of [the] analyses answer the question of how collaborative parties should assess an emergency situation in order to decide how to handle the incident in accordance with the procedures. [The] results indicate which information must be communicated in order to deal with the current problem during the course of an incident. [The authors] will also demonstrate the proposed way of analyzing the communication used here is needed to understand how information is collaboratively handled in complex tasks."

Lyn Gattis

Communication

Big data and political social networks: Introducing audience diversity and communication connector bridging measures in social network theory

Maireder, A., Weeks, B. E., de Zúñiga, H. G., & Schlögl, S. (2017). *Social Science Computer Review, 35*(1), 126–141. doi: 10.1177/0894439315617262

"Social media have changed the way citizens, journalists, institutions, and activists communicate about social and political issues. However, questions remain about how information is diffused through these networks and the degree to which each of these actors is influential in communicating information. In this study, [the authors] introduce two novel social network measures of connection and information diffusion that help shed light on patterns of political communication online. The Audience Diversity Score assesses the diversity of a particular actor's followers and identifies which actors reach different publics with their messages. The Communication Connector Bridging Score highlights the most influential actors in the network who are potentially able to connect different spheres of communication through their information diffusion. [The authors] apply and discuss these measures using Twitter data from the discussion regarding the Transatlantic Trade Investment Partnership in Europe. [Their] results provide unique insights into the role various actors play in diffusing political information in online social networks."

Yvonne Wade Sanchez

Communicating leader-member relationship quality: The development of leader communication exchange scales to measure relationship building and maintenance through the exchange of communication-based goods

Omilion-Hodges, L., & Baker, C. R. (2017). *International Journal of Business Communication, 54*(2), 115–145. doi: 10.1177/2329488416687052

"A half century of leader-member exchange research suggests that leaders share high- or low-quality relationships with members. However, these binary shortcuts dissolve the complexity of what is actually exchanged between leader and member. Therefore, a communicative view of these special dyadic relationships is forwarded, suggesting that leader-member relationships are a byproduct of, and produced through, concrete and continuous communicative exchanges. This scholarship answers long-standing calls for enhanced theoretical precision in parceling out the literal exchanges that take place between leader and member. Based on the results of focus groups and two self-report surveys, scales are developed to measure various dimensions of leader communicative behavior that may facilitate or hinder relationship development and maintenance. Group-level implications are discussed."

Katherine Wertz

Creating business value through corporate communication: A theory-based framework and its practical application

Zerfass, A., & Viertmann, C. (2017). *Journal of Communication Management, 21*(1), 68–81. doi: 10.1108/JCOM-07-2016-0059

This paper reports on "a multi-step research project which explores concepts that explain communication value across different disciplines and builds a framework that identifies and systematizes communication goals linked to generic corporate goals." Following a review of scholarship in "815 publications in 36 international journals across several disciplines (public relations, marketing, management, etc.) and published from the year 2000 onward, the authors have developed a framework, named 'Communication Value Circle'" that was used in "a communication alignment

process in a global healthcare company." On the basis of surveys distributed on several continents, "[t]he researchers have identified four major value dimensions of communication (enabling operations, building intangibles, adjusting strategy, and ensuring flexibility). The framework encompasses 12 specific goals for communication that can be derived from corporate strategy. . . . This paper proposes a consistent explanation for the theory and practice of what constitutes corporate communication."

Yvonne Wade Sanchez

Enhancing user experience with conversational agent for movie recommendation: Effects of self-disclosure and reciprocity

Lee, S., & Choi, J. (2017). *International Journal of Human-Computer Studies,103*, 95–105. doi: 10.1016/j.ijhcs.2017.02.005

"This study investigates how user satisfaction and intention to use for an interactive movie recommendation system is determined by communication variables and relationship between conversational agent and user. By adopting the Computers-Are-Social-Actors (CASA) paradigm and uncertainty reduction theory, this study examines the influence of self-disclosure and reciprocity as key communication variables on user satisfaction. A two-way ANOVA test was conducted to analyze the effects of self-disclosure and reciprocity on user satisfaction with a conversational agent. The interactional effect of self-disclosure and reciprocity on user satisfaction was not significant, but the main effects proved to be both significant. PLS analysis results showed that perceived trust and interactional enjoyment are significant mediators in the relationship between communication variables and user satisfaction. In addition, reciprocity is a stronger variable than self-disclosure in predicting relationship building between an agent and a user. Finally, user satisfaction is an influential factor of intention to use. These findings have implications from both practical and theoretical perspective."

Yvonne Wade Sanchez

New lamps for old: The Gulf Leadership Communication Framework

"[This] study aims to examine ways to counteract the arbitrary mix of organizational communication practices that has evolved in the Gulf Region as a result of the large numbers of different cultures that make up the workforce there. To this end, [the authors] attempt to develop a conceptual model of leadership communication, the Gulf Leadership Communication Framework. [They] see this as a crucial element in organizational communication practices that is of particular relevance for the process of localization in the Gulf Region. In this analysis, [the authors] refer to two sets of empirical data on discursive leadership and interpersonal communication that were collected from around 600 Emirati nationals. [Their] findings show that a leadership model for social contexts like the Gulf Cooperation Council may look very different from the models that obtain elsewhere; this is the case because in the region organizational communication may be most successful when people use strategies that privilege uniformity, rather than selecting strategies that celebrate diversity."

Katherine Wertz

Speaking into the system: Social media and many-to-one communication

"Social media have been associated with the coming of many-to-many forms of communication, but they also depend on many-to-one communication: bit trails or metadata that the users of digital media leave behind and which serve to structure future communications. Departing from a communicative rather than a technical understanding of metadata, this article discusses the place of many-to-one communication in the modus operandi of social media. Speaking into the system, users engage with media that are social in distinctive ways and, thus, participate in the structuration of particular forms of society, with or without their knowledge and consent. The rights and responsibilities of the users of social media can be addressed with reference to a principle of habeas data, which complements both habeas corpus and the classic freedoms of expression and access to information."

Yvonne Wade Sanchez

Design

Drawing strategies for communication planning: A rationale and exemplar of the geometric page form (GPF) approach

"Simple drawing tasks are effective for evaluating the many options communicators have during early design stages. These drawing strategies leverage the metaphoric meanings of basic geometric shapes, not complex artistic illustration, to represent ideas while they are in development. [This] paper supports this perspective by linking previous research on sketching, collaboration, and ideation to identify a specific approach to this kind of drawing that [the authors] term Geometric Page Forms. To further illustrate the value of these strategies, [the authors] give an example of how technical communicators used drawing during a workshop to develop communication solutions explaining complex information about sun block efficacy."

Lyn Gattis

How humans process visual information: A focused primer for designing information

"Data is presented identifying a major gap between two-dimensional (2D) communication modalities and actual learning of its content. It is proposed that information designers can create formats that are cognitively more effective by incorporating constructs from the cognitive sciences. In order to effectively design information for learning, an understanding of how the brain processes information is important and presented. In

addition, application of cognitive constructs [has] the potential to guide designers in creating cognitive-based information designs (CID). Seven cognitive constructs are discussed that can directly impact the effectiveness of information formats."

Lyn Gattis

Education

Assessing multimodal literacy in the online technical communication classroom

Bourelle, T., Bourelle, A., Spong, S., & Hendrickson, B. (2017). *Journal of Business and Technical Communication, 31*(2), 222–255. doi: 10.1177/1050651916682288

"This article examines the teaching of a multimodal pedagogy in an online technical communication classroom. Based on the results of an e-portfolio assessment, the authors argue that multimodality can be taught successfully in the online environment if the instructor carefully plans and scaffolds each assignment. Specifically, they argue for an increased emphasis within the technical communication classroom on teaching the e-portfolio as a genre that not only exemplifies students' multimodal literacies but also establishes their identities as technical communicators in the 21st century. This article provides a model for teaching multimodal composition in the online technical communication classroom and calls for more scholarship on teaching the e-portfolio in the digital environment."

Sean C. Herring

Designing online writing classes to promote multimodal literacies: Five practices for course design

Bourelle, T., Clark-Oates, A., & Bourelle, A. (2017). *Communication Design Quarterly, 5*(1), 80–88. doi: 10.1145/3090152.3090159

"In this entry, [the authors] argue that to promote multimodal literacy in online writing classes, instructors should address the following five practices in their course design: Incorporate multimodal assignments and appropriate scaffolding tools; use multimodal instructional tools to teach and model multimodal

composition; provide multimodal feedback to students' compositions; 'teach' technology through the use of media labs; [and] encourage reflection as a significant part of students' learning process. In so doing, [the authors] discuss each practice in depth, addressing the reasons and benefits for incorporating each, as well as advice about how to implement them. By implementing these practices in their online courses, instructors can successfully design classes that promote multimodal literacy."

Lyn Gattis

Helping doctoral students establish long-term identities as technical communication scholars

Grant-Davie, K., Matheson, B., & Stephens, E. J. (2017). *Journal of Technical Writing and Communication, 47*(2), 151–171. doi: 10.1177/0047281617692071

"This article aims to help doctoral students in technical communication prepare themselves for the academic job market and for the subsequent process of earning tenure and promotion in increasingly demanding environments. The authors propose that students do four things: (a) learn to spot and articulate research problems; (b) find their vocation—the work to which they feel a personal calling—within technical communication; (c) identify the research methods that best suit their personalities; and (d) articulate a research identity and agenda that they can explain at three different levels of abstraction: describing individual projects, naming the coherent themes that connect these projects, and defining themselves concisely as scholars. All these orienting practices involve students in stepping back, looking for larger patterns in their work and in their professional interests, and finding specific language to represent them."

Anita Ford

(Re)Kindle: On the value of storytelling to technical communication

"In an effort to expand the range of ways graduate programs prepare students to be scholars and practitioners in technical and professional communication, this article argues for a fresh direct reengagement with stories, storytelling, and narrative as valuable ways of studying and effectively producing the varied texts of the workplace. The previous call for acknowledging the value of narrative traces back almost 30 years, and story is still being used in a variety of compelling ways, even as an overt regard for narrative has not been sustained. What may be lacking is a systematic way to transform assumptions about stories as informal anecdotes into stories as data for rigorous analysis. David Boje's antenarrative theory and method offers technical and professional communication graduate students, scholars, and practitioners just such a compelling and timely position from which to consider workplace processes and products."

Anita Ford

Ethics

From deliberation to responsibility: Ethics invention, and Bonhoeffer in technical communication

"To make technical communication scholarship more reflective of the complexity of work done by such communicators, a new concept that marries recent parallel turns to ethics and invention is needed. German theologian Dietrich Bonhoeffer, a stranger to the field, offers such a concept: responsibility. It covers more explanatory ground than the most cited of ethical concepts, deliberation, and most importantly, centers ethics and invention squarely within the technical communicator's relationship to language."

Rhonda Stanton

The role of ethics, culture, and artistry in scientific illustration

"This article is a case-based theoretical exercise designed to investigate the role that ethics, culture, and artistry play in scientific illustration. In this article, the author theorizes a visual model of cultural interplay and scientific illustration in the creation of scientific knowledge and argues that scientific illustrations work as epistemological devices because they are culturally mediated constructions imbued with personal, organizational, and disciplinary trust, and shaped by the embedded cultural worldviews."

Rhonda Stanton

Health communication

How do credibility and utility play in the user experience of health informatics services?

"While the use of health informatics is increasing in health care, how it is improving health care and how users accept the services has been little studied, and due to increasing uncertainty, credibility has become a key determinant of health informatics adoption and diffusion. However, little is known about the underlying nature of user trust or how early-stage credibility influences later-stage behavior and experience. To enhance the explanatory power and make it more applicable to health consumers' behavioral intentions, expectation-confirmation theory was extended by adding antecedents and moderating variables from the theory of planned behavior. With health informatics services in place, this study investigates how credibility influence other user perceptions such as perceived utility and how these perceptions together determine user intentions and behaviors concerning health informatics at both the initial and later stages of use. Cross-sectional and longitudinal analysis of these attitudes and behaviors was carried out, and the results

showed that perceived utility and credibility are critical at both the initial and later stages in user acceptance of health informatics services. Users' actual experiences modify their perceptions of utility and influence the confirmation of their initial expectations. These results have implications for the fundamental nature of credibility and perceived utility as well as their roles in the long-term sustainability of future health informatics services."

Yvonne Wade Sanchez

Mobile health care applications: Authorship, regulatory challenges, and the role of medical writers

Trauth, E. (2016). *AMWA Journal, 31*(2), 51–54. [doi: none]

"Mobile medical and health applications (apps) have revolutionized health care; consumers, patients, and health care practitioners use these smart-phone and mobile communication device-enabled applications to manage their health in ways that can put health care, quite literally, in their own hands. From apps that can help track weight, caloric intake, and exercise to apps that provide important information about the effects of medications on breast milk, these programs have the potential to guide people to make improved health-based decisions in their lives. Other apps are designed for health care professionals to help them with . . . complex issues . . . . Because of the diversity of app types and audiences and the need for credible health care communication, the expanding app market is of potential importance to a wide range of medical writers and editors, including those who work on medical-device regulatory documents, patient education resources, or continuing education materials designed for researchers or practicing health care professionals. This article provides an overview of the mobile health market, the regulatory environment, standards of review within the industry, and opportunities to improve mobile health apps by the inclusion of medical writers and editors in app development."

Magdalena Berry

Information management

Comparing InfoVis designs with different information architecture for communicating complex information

Li, M., Gao, R., Hu, X., & Chen, Y. (2017). *Communication Design Quarterly, 5*(1), 43–56. doi: 10.1145/3090152.3090156

"In this paper, [the authors] explore the connections of information architecture (IA) with information visualization (InfoVis) through the discussion of different visualization designs used to demonstrate the occupations pursued by college students after graduation. In examining this topic, [they] used different information architectures to compare three visualization layouts based on the same data. The three layouts included one published visualization and two visualization designs developed by the researchers. [The authors] then used eight IA principles to compare how these visualizations communicate the complex relationship between majors, occupations, and their related characteristics in relation to the career paths of students."

Lyn Gattis

Helping content: A three-part approach to content strategy with nonprofits

Flanagan, S., & Getto, G. (2017). *Communication Design Quarterly, 5*(1), 57–70. doi: 10.1145/3090152.3090157

"Nonprofits must reach a variety of community audiences to sustain their organizations, and these audiences include potential volunteers, donors, and clients. With the increasing availability of open-source, freely available, and inexpensive communication technologies, many nonprofits can now develop a robust web presence that targets a variety of audiences via a variety of channels. In this article, [the authors] present a three-part heuristic to help nonprofits better manage digital content. This heuristic is comprised of developing audience awareness and interaction, making use of emerging technologies, and building sustainable partnerships. Using a project designed to help a

homeless shelter improve its content strategy, [they] explore this heuristic and its implications for helping technical and professional communicators improve local nonprofit digital capacities."

Lyn Gattis

A systematic literature review of changes in roles/skills in component content management environments and implications for education

Batova, T., & Anderson, R. (2017). *Technical Communication Quarterly, 26*(2), 173–200. doi: 10.1080/10572252.2017.1287958

"Component content management (CCM) enables organizations to create, manage, and deliver content as small components rather than entire documents. As CCM methodologies, processes, and technologies are increasingly adopted, CCM is reshaping technical communication (TC), the roles of technical communicators, and the skills they need for career success. This article reviews scholarly and trade publications that describe changes in roles and needed skills in CCM environments and identifies implications of these changes for TC education."

Rhonda Stanton

Management

Discourse of leadership: The power of questions in organizational decision making

Aritz, J., Walker, R., Cardon, P., & Li, Z. (2017). *International Journal of Business Communication, 54*(2), 161–181. doi: 10.1177/2329488416687054

"This study aims to more fully understand leadership when it is understood as primarily discursive in nature and coconstructed by those involved in interactions in which influence emerges. More specifically, it explores the performative role of questions as speech acts. In this case, [the authors] look at how questions are employed as a key discourse type to enable professionals to construct their authority and establish leadership

roles. The data consist of transcripts of decision-making meetings. A scheme for coding the question-response sequence in conversation was used to identify the form, social function, and conversational sequence of question use. The questions then were analyzed by speaker and his or her role as leader versus nonleader. While questions can result in or encourage group collaboration by opening the discussion and inviting contributions, they can also be used to direct team members, seize the floor, and influence decision making. The study contributes to the study of leadership and team decision making by looking at how questions operate as a multifunctional discourse type, and how they are used to establish influence in decision-making meetings."

Katherine Wertz

Leader talk and the creative spark: A research note on how leader motivating language use influences follower creative environment perceptions

Mayfield, M., & Mayfield, J. (2017). *International Journal of Business Communication, 54*(2), 210–225. doi: 10.1177/2329488416687057

"Garden variety creativity has a vital but often overlooked role in business. Garden variety creativity happens whenever someone develops a new way of dealing with a workplace issue. It contrasts with institutional creativity—actions meant to develop radical new business methods and products at an organizational level. Institutional creativity advances a business' place in an industry. Garden variety creativity makes daily routines more efficient and fulfills employees' need for expression in the workplace. This article examines how leader communication—as captured by the motivating language framework—influences employees' perceptions of the creative environment. Structural equation model analysis found a strong, significant, and positive relationship between leader motivating language use and worker perceptions of their creative environment. Motivating language use explained 55% of the variance in creative environment perceptions in a sample of over 140 workers drawn from diverse organizations. Findings also showed a 7% increase in creative environment perceptions for every 10% increase in motivating language use."

Katherine Wertz

Racial incidents at the University of Missouri: The value of leadership communication and stakeholder relationships

Fortunato, J., Gigliotti, R., & Ruben, B. (2017). *International Journal of Business Communication, 54*(2), 199–209. doi: 10.1177/2329488416687056

"A series of incidents in 2015 escalated racial tensions at the University of Missouri that ultimately contributed to the departure of the university president and chancellor. This case highlights the importance of focusing attention on competent leadership communication, which includes the development and maintenance of strong relationships with key stakeholder groups; the ability to predict, recognize, detect, and address issues that may rise to the level of crisis as defined by stakeholders; and the skill to craft timely, sensitive messages and effectively use interpersonal and mediated channels of message distribution and retrieval, especially social media, so that there is adequate information flow to and from institutional leaders allowing them to learn of, understand, and address stakeholders' concerns as they emerge."

Katherine Wertz

Strategic communication in the C-suite

Argenti, P. (2017). *International Journal of Business Communication, 54*(2), 146–160. doi: 10.1177/2329488416687053

"This article explores the ways in which C-suite executives are using corporate communications to execute strategy. Over the past two decades, we have seen a profound shift in how leaders view communications within organizations. This shift has moved from a tactical and superficial focus (speech writing, media placements) to a more strategic and elevated level (developing and implementing strategy through communication, sophisticated measurement using big data to understand constituencies and influence reputation). Thus, the central research question in this article is focused on the following theme: 'How do leaders use communications to execute strategy in the 21st century?' Through a review of current literature on the topic and synthesis of both published and newly conducted interviews, the article provides a snapshot of

leadership communication in organizations today as it relates to the execution of strategy."

Katherine Wertz

Professional issues

A case study: Medical writing as a feminized profession

Graham, H. (2016). *AMWA Journal 31*(3), 112–117. [doi: none]

"Women are on an exodus from the science, technology, engineering and mathematics (STEM) workforce following their scientific education. While women are earning undergraduate degrees in biological sciences at a greater rate than men, they account for only 18% of full professors and 5% of executives at biotechnology companies; overall, men make up 70% of the scientific workforce. If women aren't making it to the top in scientific positions, where are they going? [The author argues] that medical writing is one profession attracting women who leave the scientific workforce. Medical writing has become what is known as a feminized profession, which generally refers to an increase in the proportion of women practicing a particular occupation. Unfortunately, feminization can lead to a perceived de-skilling of the profession and an associated decline in compensation. While AMWA is currently predominantly women, it was founded in 1940 by Harold Swanberg, MD, and 5 of his male physician colleagues. This article is a case study that resulted from interviews with 3 practicing medical editors or medical writers. Common themes that emerged from the interviews included: the fluid entry into the field supported by a strong referral network, the flexibility the profession frequently provides, the increasing necessity to quantify the value of the work being performed, and the need to define what makes a good medical writer. While this small qualitative study cannot be generalized, it does provide a window into perceptions and practices. Further research is needed to shed light on the systematic inequities that occur when professions are feminized and gendered work is unequally compensated."

Magdalena Berry

Extralocating faculty in technical communication

"Tenure-line faculty—teaching onsite or online—are typically perceived as resident scholars and instructors who live local to their institutions. A geographically diversified tenure-line faculty, however, could also serve the education of students by bringing a wider array of influences and opportunities to the online classroom. Programs in technical communication must examine how to incorporate extralocated faculty and how to prepare willing and eligible faculty for extralocated teaching, research, and service."

Rhonda Stanton

Research

Communication evaluation and measurement: Skills, practices and utilization in European organizations

This paper examines "the status quo of communication evaluation and measurement practices in communication departments of companies, non-profits, and other organizations across Europe. . . . The study argues that the challenge to conduct reliable measurement is threefold: first, communication professionals have to understand and develop skills how to conduct evaluation; second, they have to evaluate whether communication activities have reached those goals in practice; and finally, they have to use those insights to advance and manage their future activities. . . . A quantitative survey of 1,601 professionals from 40 European countries was conducted to research prerequisites, implementation and benefits of communication measurement and compare practices across types of organizations. . . . Although robust knowledge of empirical research methods and their application for measuring communication effects is indispensable, many practitioners lack the necessary expertise to conduct reliable evaluation and measurement. . . . The findings highlight the

need to reconsider current education and training in communication research methods and their application in corporate practice."

Yvonne Wade Sanchez

Crowdfunding science: Exigencies and strategies in an emerging genre of science communication

"Crowdfunding is a novel mechanism for garnering monetary support from the online public, and increasingly it is being used to fund science. This article reports a small-scale study examining science-focused crowdfunding proposals from Kickstarter.com. By exploring the rhetoric of these proposals with respect to traditional grant funding proposals in the sciences, this study aims to understand how the language of science may be imported into this popular genre."

Rhonda Stanton

Usability

Making practice-level struggles visible: Researching UX practice to inform pedagogy

"Teaching user experience (UX) can be challenging due to the situated, complex, and messy nature of the work. However, the complexity of UX in practice is often invisible to students learning these methods and practices for the first time in class. In this article, [the authors] present findings from a study of rhetorical strategies of UX practitioners and pair them with strategies for teaching UX to students. While previous work on teaching UX reflects current practices in the classroom or reflections of practitioners, this study demonstrates the benefits of researching existing industry practices in order to inform pedagogy."

Lyn Gattis

User experience rating scales with 7, 11, or 101 points: Does it matter?

"There is a large body of work on the topic of the optimal number of response options to use in multipoint items. The takeaways from the literature are not completely consistent, most likely due to variation in measurement contexts (e.g., clinical, market research, psychology) and optimization criteria (e.g., reliability, validity, sensitivity, ease-of-use). There is also considerable research literature on visual analog scales (VAS), which are endpoint-anchored lines on which respondents place a mark to provide a rating. Typically, a VAS is a 10-cm line with the marked position converted to a 101-point scale (0–100). Multipoint rating items are widely employed in user experience (UX) research. The use of the VAS, on the other hand, is relatively rare. It seems possible that the continuous structure of the VAS could offer some measurement advantages. [The] objective for this study was to compare psychometric properties of individual items and multi-item questionnaires using 7- and 11-point Likert-type agreement items and the VAS in the context of UX research. Some characteristics (e.g., means and correlations) of the VAS were different from the Likert-style (7- and 11-point items), so the VAS does not appear to be interchangeable with the Likert-style items. There were no differences in the classical psychometric properties of reliability and concurrent validity. Thus, [the authors] did not find any particular measurement advantage associated with the use of 7-point, 11-point, or VAS items. With regard to measurement properties, it doesn't seem to matter (but the literature suggests multipoint items are easier to use)."

Ginnifer Mastarone